MARCH 30, 1953

NEWS ISSUE

Electrical World

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When streams like this

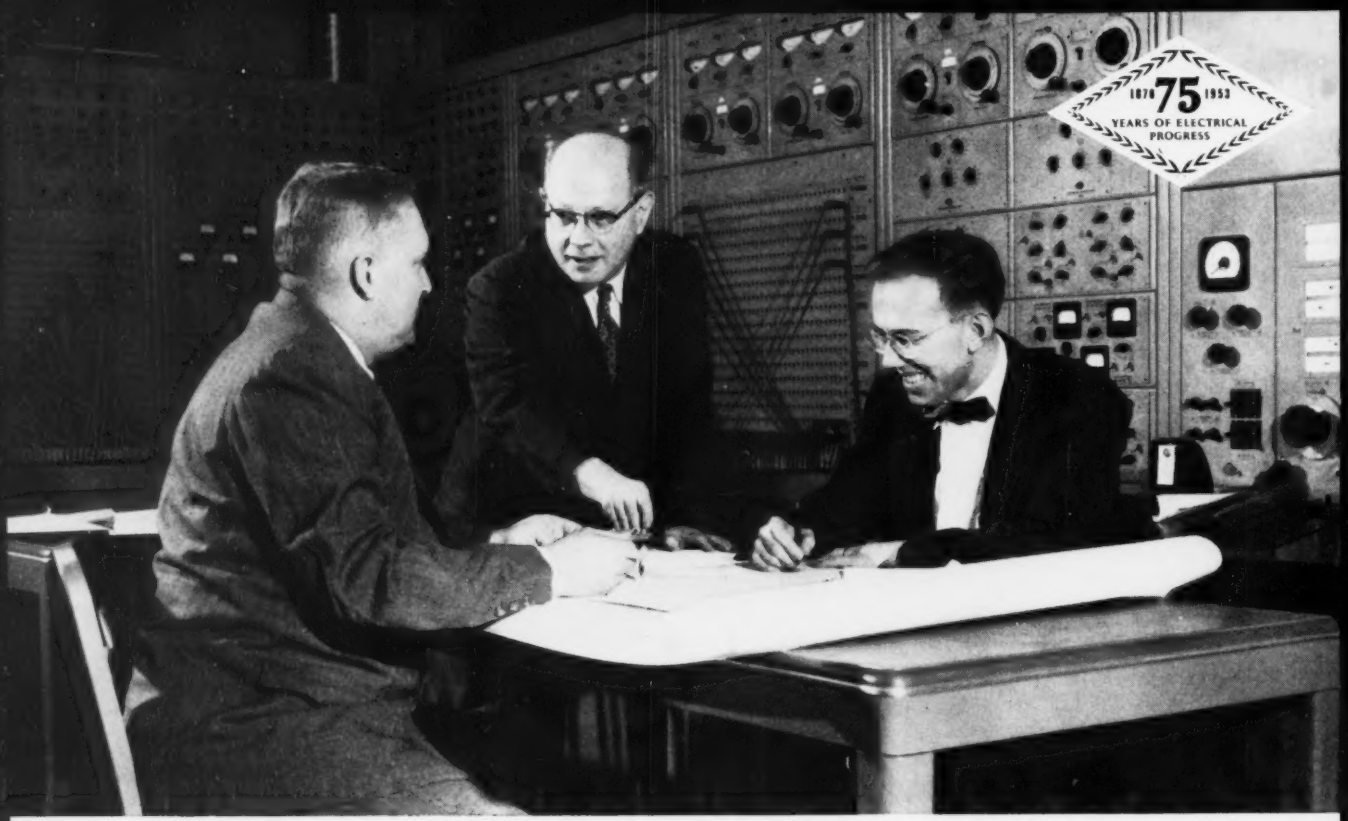
Faded to this

Cooperation

Beat the Northwest's Worst Power Shortage

Florida P&L Prefers a Small Plane . . . Page 16

Construction Still Rising . . . Page 50



Basic tool for all transmission studies, the network analyzer, provides necessary circuit loading information to be used in digital calculations. S. B. Crary, Manager, Analytical Engineering, checks results with G. Kron and Dr. L. K. Kirchmayer, developers of the new loss formulas.

Transmission loss studies can mean NEW ECONOMIES IN SYSTEM LOADING

Electronic computers solve and print the answers to loss calculations for F. J. Maginniss, Manager, Special Investigations Section, and Dr. L. K. Kirchmayer, thus eliminating much repetitive human effort.

Transmission losses can now be quickly and economically analyzed by the use of new loss formulas developed cooperatively by General Electric and electric utility engineers. Applied to your system, these formulas bring improvements in generation scheduling, interconnected system energy accounting and future system planning.

Worthwhile savings result from economic loading in system operation. By following the recommendations of transmission loss studies, load dispatchers and designers can achieve the most economic system loading. These studies involve a new concept in network mathematics, using the network analyzer, tensor analysis, and digital computer calculations.

General Electric engineers are constantly making developments on all phases of power systems engineering—from product advances to over-all system economy studies. More detailed information is available by writing for "Loss Formulas Made Easy." Write to Section 301-228, General Electric Co., Schenectady, New York.

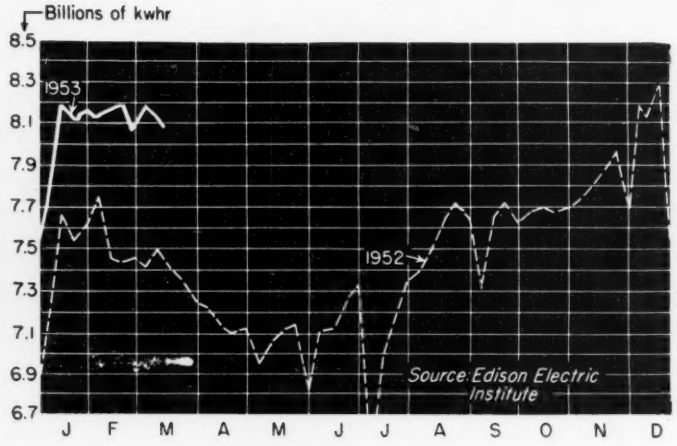
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 139, NO. 13

March 30, 1953

Electrical World



Output Week Ended March 21—8,077,706,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
March 21	+9.8	+11.6	+5.8	+9.3	+6.3	+11.7	+5.7	+14.0	+10.9	+19.2
March 14	+9.8	+11.8	+6.7	+10.9	+8.6	+12.9	+4.1	+9.4	+8.5	+12.3
March 7	+9.0	+9.4	+6.6	+10.9	+7.8	+10.9	+2.4	+10.6	+8.3	+10.7

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	Dec.	75.5	72.8	70.4
Capacity (Million Kw)	Jan.	82.38	82.05	75.97
Production (Billion Kwhr)	Jan.	36.66	36.45	34.20
Hydro		9.26	8.22	9.90
Fuel		27.40	28.23	24.30
Fuel Consumption				
Coal (Million Tons)	Jan.	10.49	10.72	9.87
Oil (Million Barrels)		7.70	8.52	6.07
Gas (Billion Cu Ft)		60.06	60.54	52.27
Sales (Billion Kwhr)	Dec.	31.20	30.08	28.44
Residential		8.91	8.16	7.95
Commercial		5.21	5.01	4.77
Industrial		15.11	14.91	13.74
Other		1.98	2.01	1.97
Net Income Class A & B Companies ($ Million)	Dec.	99.24	79.81	88.74
Estimated Dec. '53 Peak (Million Kw)	Dec.	87.0	87.3	88.5
Kwhr per Residential Customer (12 Month Average)	Dec.	2,169	2,155	2,004
Revenue per Kwhr Residential Service (12 Month Average)	Dec.	2.77¢	2.77¢	2.81¢
Canadian Production (Billion Kwhr)	Dec.	5.54	5.22	5.11

Business Statistics

FRB Industrial Production Index†††	Jan.	233*	233	217
Gross National Product Annual Rate ($ Billion)	3rd Qtr.	343.4	342.6	337.1
E. W. 5 Industry Production Index	Jan.	130.0*	129.8**	124.4
ENR Construction Cost Index††	Feb.	123.1	123.1	114.8
BLS Consumer's Price Index	Jan.	190.4	190.7	189.1
NEMA Insulation Materials Sales Index†	Jan.	643	655	548
NEMA Electric Appliance Sales Index†		293	268	233
NEMA Household Refrig. Sales Index†		192	147	153

*Preliminary **Revised †1936=100 ††1949=100 †††Unadjusted

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Electrical World • Vol. 139, No. 13, Mar. 30, 1953

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 N. Broadway, Albany 1, N. Y. Executive, Editorial and Advertising Office: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publication Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Electrical World—Subscription Service, 99-129 North Broadway, Albany 1, N. Y. or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are accepted only from executive, supervisory, and engineering personnel in electric utilities, manufacturing companies, and related fields. Position and company connection must be indicated on subscription orders.

Single copies 35¢. For the United States and possessions $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money, at par.) Other Western Hemisphere, $15 for one year, $25 for two years, $30 for three years. All other countries, $25 for one year, $40 for two years, $50 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in U.S.A.

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THE POWER CAN'T "SEE" *THESE JUMPER LOOPS*

The only splices you must have on a transmission line are between reels. Spliced jumpers at strain points, and the troubles that go with them, are unnecessary.

Continuous-cable jumper loops are the natural consequence of using Hi-Lite strain clamps. Jumpers that the power can't "see" are just as easy to build - or easier - than those with splices.

As a bonus you get a clamp that is inherently low priced; that installs in a matter of minutes; that takes nothing more than a common hand wrench by way of installation equipment. The clamp can be physically checked any time in the life of the line for holding power.

Take a look at your deadend clamping practice and consider the advantages of mechanical simplicity and unspliced jumpers.

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THE ELECTRICAL WEEK

The Issue's News Highlights—Materials controls will go out of existence June 30 for civilian industries. Priorities will be retained only for defense and defense-related programs, including 50 electric projects.

FPC hears recommendations on how to treat accelerated amortization for rate-making and accounting purposes.

Puget Sound P&L directors vote this week on proposal to merge with Washington Water Power.

Off the Washington Wire—REA shakeup is still a top topic of discussion here. E. C. Johnson, career government employee, is acting as liaison man between REA and Secretary of Agriculture, but Johnson is signing no REA papers. Deputy REA Administrator William C. Wise was still acting administrator last week . . . Farmers Union last week retained ex-Secretary of Agriculture Charles Brannan as legal counsel, and blasted the Eisenhower Administration for firing Wickard from REA.

A House Interior subcommittee may try to write a minimum power rate clause into legislation raising the authorization for Eklutna hydro project in Alaska. This would mark a departure from present policy which leaves rates entirely up to Interior Department.

FPC has suspended a proposed 28.4% rate increase by Pacific G&E for sales to Sierra Pacific Power Co of Reno, Nev. Hearing in the rate case will begin before FPC on April 6 in Washington.

Appointment of John C. Doerfer, chairman of Wisconsin PSC, to Federal Communication Commission removes one of the candidates for the FPC. Bitter in-fighting continues between Republicans backing Willard W. Gatchell and those backing Jeff A. Robertson for the FPC job.

From New England—Twenty continuous hours of hard work by boiler mechanics at Cambridge Electric Light's Kendall Square Station after a 1,300-psi tube rupture saved the company from any excess electrical purchase demand penalty from outside the area to maintain full power.

New England Electric System's 1952 record of disabling injuries, five per million man-hours of exposure (against 5.8 in 1951), was the best in system's history. Severity (days lost per thousand man-hours) was 0.15, lowest since 1930 when accurate records were started. . . . Vermont state senators engage in hot debate on whether $25,000 shall be appropriated to determine state's possible concern with St. Lawrence project. Prospective benefits are questioned.

Pennsylvania P&L is asking its stockholders to vote April 20 on proposal to amend the by-laws "to provide that directors who are not officers or employees of company shall be compensated for their services at the rate of $5,000 per year, together with reasonable expenses incurred in attending meetings of the board."

Pacific G&E is testing nylon fabric safety belts for linemen . . . Con Edison of New York is making tests on recommended "non-conducting" devices for removing a fallen wire from a 4 to 69-kv line from a victim . . . all manufacturers are again supplying transformers in distribution ratings up to 167 kva (GE 500 kva and network) with oil that has been inhibited by DBPC 61.

Operating revenues of privately owned electric industry totaled $5.7 billion in 1952 as compared with $5.2 billion in 1951, preliminary figures of Federal Power Commission show. Net income amounted to $921.9 million as compared with $814.2 million reported in 1951.

Engineers of Allis-Chalmers and Reynolds Metals will meet on March 31 in Milwaukee for day-long talks on technology of applying aluminum alloys, tempers, and mill products to electrical equipment.

Because of a change in system plans delivery of 15,000-kw gas turbine, on order by Public Service Co of Oklahoma, has been deferred 18 months. Delivery was to have been made by Westinghouse Electric in early 1954.

"Why I want an Electric Range" will be the theme of a spring range campaign developed by the Sacramento, Calif., Valley Electric League. To contestants giving best answers in 25 words or less will go $4,500 of prizes, including 12 ranges and eight traffic appliances.

Recent Labor Settlements—Consumers Power Co and UWUA, CIO, agree to about 5% wage increase, effective March 1. This agreement came shortly after Michigan's Gov G. Mennen Williams appointed a three-man panel under the Bonine-Tripp law . . . El Paso Electric and IBEW, AFL, agree to 6¾% wage boost . . . Wisconsin Michigan Power and IBEW, AFL, agree to 7% wage increase.

Congratulations—Burdette A. Johnson, comptroller, NEGEA Service Corp, will serve as vice chairman of arrangements committee for 22nd annual meeting of Controllers Institute of America, to be held Sept. 27-30 in Boston.

Orville F. Haas, GE commercial vice president, is cited by Drexel Institute of Technology as "one of three leading Philadelphia industrialists who have contributed most to the broad field of electrical engineering."

L. A. (Bill) Williams, Puget Sound P&L vice president, is named "Citizen of the Year" for his outstanding general community service by 19 American Legion posts at Seattle . . . Sumner T. Pike, former Atomic Energy Commissioner, is named a member of the Maine PUC.

Equitable Life Assurance Society promotes O. S. Swensen from second vice president in charge of public utility investments to vice president in charge of the securities department.

Obituary—Dr John C. Parker, 73, retired vice president

(Continued on page 10)

Material Controls Bow Out June 30

• Priorities will be retained only for scarce metals needed for defense or related programs including 50 utility projects

• After June 30 materials and equipment for all other electric plants may be obtained without government allocation

• Depa will remain in some form to handle priorities for the 50 generating projects which have received E-5 ratings

Materials control machinery in Washington will shift into low gear June 30. Plans now call for the retention of priorities only for the scarce metals going into vital defense or defense-related projects.

Generally the idea is to reserve enough steel, copper, and aluminum for these specifically designated military and atomic energy projects, and keep hands off the distribution of the remainder. For electric utilities the new control system, designated "Defense Materials System," will apply only to the 50 electric generating projects which carry the E-5 rating.

These projects were selected by Defense Electric Power Administration several weeks ago (EW, March 9, p 74) because they will contribute interim, firm, or backup power for atomic energy installations. For other power projects already under construction, or which will be started after June 30, all material and equipment is to be obtained without government allocation or priority.

In a formal sense, the new control plan hinges on Congressional extension of Title I of the Defense Production Act. But it is taken for granted that Congress will go along on giving the Administration the comparatively limited powers required for operation of DMS.

Eisenhower Set Policy

The move to set up DMS, and toss the old control materials plan aside, would put into effect the policy set forth by President Eisenhower in his State of the Union message. In that document, he asked that material controls be limited to defense requirements.

Changes in control regulations have already been made with a view to shifting to DMS. Explaining these last week, H. B. McCoy, acting director of National Production Authority put it this way:

"In essence, these actions provide for narrowing the scope of materials control. Under CMP, the government has been allocating all steel, copper, and aluminum not only for defense purposes but also for the entire civilian economy. Under DMS, the government steps out of the civilian side of the materials control picture."

Discussion and studies are still in progress on the details of the proposed new control setup, but for the agencies dealing with electric power this course appeared to be shaping up:

• Depa, claimant agency for electric utilities, will remain in some form past June 30. It will be the "allotting agency" for utilities building the vital generating projects designated with an E-5 rating.

• It may well be that the surviving remnants of Depa will be shifted from Interior Department to some other old-line department or to some newly organized agency under the Office of the President.

• NPA's Electrical Equipment and Engine and Turbine Divisions, claimant agencies for electrical equipment manufacturers, will also remain active although in a greatly reduced status. Besides assuring delivery of equipment for the E-5 generating projects, these divisions will keep a careful watch on material supplies for other segments of the industry for which they are now a claimant agency. They are to keep top officials informed on the effects of DMS on the electric equipment industry.

• It is now contemplated that all NPA industrial divisions, including Electrical Equipment and Engine and Turbine will be integrated into the Commerce Department. NPA has been under Commerce all along, but has functioned as a semi-independent agency.

Besides Depa and NPA, there will be only three other agencies handing out material allotments and priorities under the proposed DMS. These are:

1. Defense Department, which will allot materials for defense projects.
2. Atomic Energy Commission, which will handle priorities for its own plants.
3. Civilian Aeronautics Authority, which will handle priorities for construction of civilian aircraft.

Depa Acts Quickly

Depa was quick to translate the control regulation changes into action. To all electric utilities last week, it sent out letters with these instructions:

1. Depa will continue to issue stainless steel allotments for the third quarter 1953 only. For utility projects assigned the E-5 rating, utilities will continue to file forms DEPA O to obtain allotments of stainless steel. For all other major plant additions, requests for stainless steel allotments should be made by letter, referencing the Depa serial number for the project if one has been assigned.

2. Utilities will continue to file forms DEPA-9 and will continue to receive allotments as in the past for major plant additions assigned the E-5 rating. For all other major plant additions, allotment issuances other than for stainless steel have been discontinued and no further DEPA-9's should be submitted.

3. Unused allotment authority which has been cancelled—that is for authority beyond June 30 on the non-E-5 projects—should not be returned to Depa. Instead, the utility should note on its records the fact that such allotments have been cancelled. For the third quarter 1953 and subsequent quarters, utilities will not need to keep any records of material allotments, except for stainless steel and material obtained for E-5 rated projects. However, control regulations requires that past records be retained for at least three years.

4. Minor requirements quotas of stainless steel for the third quarter allotments for stainless steel will be valid. All other minor requirements quotas allotments and DO ratings for the third quarter and subsequent quarters are cancelled.

Rapid Tax Write-Off Debate

FPC listens to views of utilities, state bodies, and its own staff on accelerated amortization and rates

At least three ways are open to Federal Power Commission in treating accelerated amortization for rate-making and accounting purposes.

These became apparent from arguments presented at a hearing held by the commission on March 18 and from comments filed previously by regulated utilities, consumer representatives, and state commissions.

The fast tax write-off program was adopted in the Revenue Act of 1950 to step up expansion of defense production facilities.

Certification of a project permits companies to amortize an authorized amount of the cost by means of the rapid tax write-off over a five-year period, rather than its normal life.

Three Possibilities . . . As the five-man commission went into a huddle last week to thrash out the possible rules change, its choice seemed narrowed down to these possibilities:

1. It could, as the electric companies suggested, make no new rules for either accounting or rate-making in relation to the accelerated amortization. Instead, the commission could adopt the accounting procedures ordered by state commissions (EW, March 16, p 42) and issue a policy statement saying it would discount accelerated amortization in regard to rate-making.

2. It could, as the pipeline companies suggested, formulate new rules or policy specifically saying no account would be taken of fast amortization for rate-making purposes, and the tax deferrals will be handled through a reserve account for accounting purposes.

3. It could, as its staff suggested, make no rules or statement of policy concerning accelerated amortization. But this recommendation contemplates that as individual cases are taken up, the commission would gear both rate-making and accounting to actual taxes paid and normal depreciation—thus negating any benefits the fast amortization program might otherwise confer on utilities. Under this proposal, the tax deferrals would be handled through Account 540 in the FPC Uniform System of Accounts.

Savings for Ratepayer . . . The FPC staff found itself in the same camp with public power and consumer groups in advocating that benefits accruing from accelerated amortization be passed on to the ratepayer.

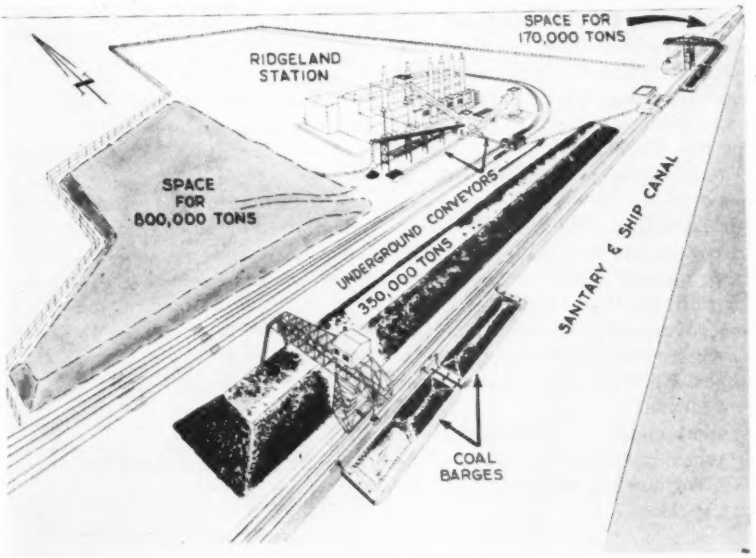
Pipelines and electric companies agreed in general that money made available by tax deferrals should be used for plant expansion, but they parted as to whether FPC should adopt additional rules for accounting and rate-making. Attorneys for several pipelines said rules were needed immediately in order for their companies to approach financing situations and to know whether they should elect to take accelerated amortization.

Attorney for Panhandle Eastern Pipeline Co circulated a lettter written by Ralph Trigg, Office of Defense Mobilization, expressing view that utilities should get tax deferral benefits as this was intent of Congress.

Sides with FPC Staff . . . Democratic Sen Warren Magnuson of Washington sided with the FPC staff on the handling of fast amortization. He questioned whether Congress had ever intended this benefit to be used by utilities. He said Congress certainly did not mean that FPC should abdicate its jurisdiction on this issue. Magnuson spoke for Sen H. M. Jackson and Rep Don Magnuson of Washington.

Arguing for Edison Electric Institute and six electric companies, A. J. G. Priest, attorney, said the fast amortization certificates were issued " to persuade and induce" the investment of private capital in facilities which would be useful in an emergency and to assist in the financing of those facilities.

Priest asked that no rules be adopted by the commission with respect to fast amortization. However, he said it might be well to adopt a general policy "the effect of which would be an announcement that the commission will not in future rate proceedings permit either rate decreases or future rate increases by reason of the fact that the utility involved has elected accelerated amortization under a necessity certificate."



Making Room for More Coal

Commonwealth Edison Co has completed arrangements to increase coal storage space at its Ridgeland Station from 350,000 tons to 1.3 million tons. Storage layout (above) provides for addition of two piles—one to hold 800,000 tons and another to hold 170,000.

The additional storage facilities will be needed when Ridgeland's capacity of 300,000 kw is increased to 600,000 kw with the addition of two new units, one this fall and another in the spring of 1954. When the ultimate capacity is reached, Ridgeland will have coal requirements of 6,500 tons a day.

TVA Office Shift

Clapp hopes to have headquarters staff settled at Muscle Shoals by summer of 1954

Tennessee Valley Authority will make its third attempt to shift its headquarters staff of some 500 employees from Knoxville, Tenn., to Muscle Shoals, Ala.

By the summer of 1954, TVA Board Chairman Gordon Clapp hopes to have his top command settled in a $3.5 million building which the agency will build near Wilson Dam.

Following offices are included in the move: Headquarters of the board, general manager, and divisions of finance, law, personnel, agriculture relations, regional studies and reservoir properties. About one-third of the TVA employees in Knoxville are involved.

Engineering division headquarters will remain at Knoxville and the forestry division at nearby Norris.

Law Says Muscle Shoals . . . Basic TVA Act of 1933 put the headquarters at Muscle Shoals and it has been there in a legal sense all the time. But actually, the TVA directors and their staff have been living and operating from Knoxville. It got its start in Knoxville when Norris Dam was being constructed near there as the first of the new TVA dams.

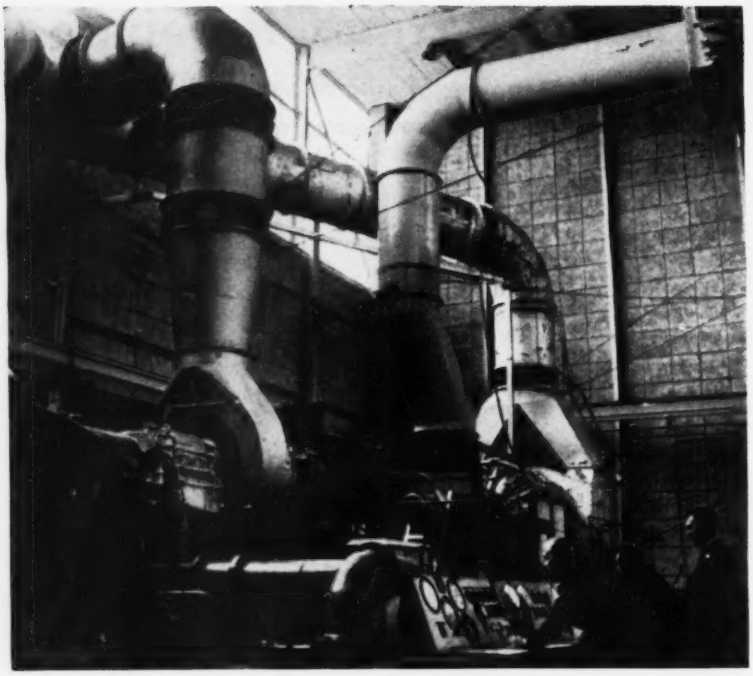
First attempt to comply with the act came in 1939 when Clapp, then general manager, made a study on the best place for the headquarters. He came up with plenty of reasons for the shift, but World War II shortages and concentration of additional construction work on the river tributaries in the Knoxville area thwarted the move then.

Another move in that direction was prevented in 1950 by the Korean conflict, but now the directors think the way is clear.

Reasons for Move . . . Reasons for the shift:

- The Muscle Shoals area is a little nearer the center of operations and has better transportation and communication lines for keeping up with all TVA's activities.
- It is near the site of the initial hydroelectric project in the TVA system, and therefore has some historic significance.
- One of the TVA electric dispatching centers is at Wilson Dam.
- It is near TVA's chemical plant operations.

But there are rising signs of opposition to the move. Knoxville city officials promise an all-out fight. They are being joined by Tennessee Congressmen who want the TVA headquarters to remain in Tennessee where the bulk of the agency's electric system is located.



Test Plant for Gas Turbine Engines

The British government has taken the wraps off a plant where the Royal Navy is testing out gas turbine marine engines that will power super-fast warships as a form of "over drive." The test center is located at the National Gas Turbine Establishment, Farnborough. Picture above shows a test bay of the Admiralty Gas Turbine Test House. The British already have in operation a tanker with a gas turbine engine which has crossed the Atlantic several times.

Bill Supported by PGE Stalled in Committee

Oregon legislative action on revision of the state hydroelectric commission code as proposed in a bill sponsored by Portland General Electric Co hit a snag March 14. The delay gave fish conservationists an opportunity to submit an amendment to House Bill 160 and a companion bill designed to soften the impact of PGE's proposal.

The House Committee of State and Federal Affairs was prepared to report favorably on PGE's bill when it discovered that through a misunderstanding neither the game nor the fish commission had been invited to testify.

Postponement of action gave opponents, who had learned there were enough House votes to assure passage of PGE's bill, time to seek a compromise.

The proposed bill is the result of state hydroelectric commission refusal to approve PGE's Pelton project on the Deschutes River in central Oregon. Under existing code the state fish commission holds a veto power over power projects and had used it although Federal Power Commission approved the Pelton proposal. There is no provision for appeal to the courts from rulings of the hydroelectric body.

House Bill 160 would allow appeal of the Hydroelectric Commission's decisions to the court and would restrict the veto power of the fish and game commissions.

Opponents of the bill moved during the House committee delay to protect the fish commission's right to veto projects harmful to fish runs.

SMUD Plans

Sacramento District hopes to generate its own power in few years. Two plants studied

James E. McCaffrey, chief engineer and general manager of the Sacramento (Calif.) Municipal Utility District, has disclosed SMUD hopes to enter the power production field in the next few years.

At the present time SMUD receives its entire power supply from the Pacific Gas & Electric Co. However, when the contract with the PG&E expires June 30, 1954, SMUD will begin receiving energy from the Central Valley Project under an agreement signed in December with the Bureau of Reclamation.

More Power Needed . . . To meet a continuing growth of load, McCaffrey declared recently, it "will be necessary for the district to begin in 1955—certainly no later than that—to construct a steam plant of sufficient capacity and to construct the Rubicon-Silver Creek development if the power requirements of the Sacramento area are going to be met with an adequate supply of low cost power."

McCaffrey said by 1970 SMUD estimated annual firm power requirements will be 2,250,000,000 kwhr.

He pointed out this would more than require the entire output of the Shasta-Keswick-Folsom-Nimbus system of the CVP, plus the output of a 100,000 kw steam plant.

Studies Being Made . . . The studies for the steam plant and hydroelectric generating facilities, McCaffrey said, are presently being carried on.

"SMUD's responsibility for service to its customers of course requires that power be obtained from the most economical source or sources available," McCaffrey asserted. "In viewing possible power sources, our efforts during the past six years have not been limited to obtaining power from the Central Valley Project exclusively. During the period 1947-1952 SMUD continuously explored various sources of power on the American River and its tributaries.

"As the end of this period approached, these explorations became more intensive and took on a greater practical significance.

"Mr Frank E. Bonner, well known consulting engineer from San Francisco, was instructed to proceed with studies on the district's contemplated Rubicon-Silver Creek power project culminating in (1) an application for a preliminary permit before the Federal Power Commission and (2) the completion of water rights applications with the state engineer.

"The district also recognized that steam electric generating capacity would probably be needed, either as a substitute for Central Valley Project power, if such could not be obtained, or as a necessary supplement to any Rubicon-Silver Creek development, inasmuch as the Central Valley Project does not have sufficient power to meet our load growth."

Wyatt Supplied Pictures

The pictures used with the article, "Genissiat Dam—French Coal Saver," on Page 21 of the Feb. 2 issue were supplied by and should have been credited to Kenneth T. X. Wyatt, engineer of cables, Phelps Dodge Copper Products Corp.

Changes in Capacity Reported to FPC

PLANT ADDITIONS DURING JANUARY

State	Utility	Plant	Fuel	Capacity (kw)
Me.	Lubec Municipal Water & Electric Department	Lubec	IC	900
Ind.	Indianapolis Power & Light Co	White River	S	60,000
Wis.	Lake Superior District Power Co	Bay Front	S	20,000
Minn.	Bigfork Valley Electric Co	Bigfork	IC	72
Minn.	Two Harbors Municipal Water & Light Plant	Two Harbors	S	3,500
Neb.	Holdrege Municipal Light & Water Plant	Holdrege	IC	1,400
Kan.	Pratt Municipal Electric Department	Pratt	S	5,000
Va.	Army Corps of Engineers	I. H. Kerr	H	32,000
Va.	Army Corps of Engineers	I. H. Kerr	H	12,000
S. C.	South Carolina Electric & Gas Co	Columbia	H	1,300
S. C.	Army Corps of Engineers	Clark Hill	H	40,000
Fla.	Key West Utility Board & Electric System	Key West	IC	1,100
Tenn.	Tennessee Valley Authority	Cherokee Dam	H	30,000
Ala.	Tennessee Valley Authority	Widows Creek	S	112,500
Wash.	Public Utility District No. 1	Rock Island	H	22,500

PLANT RETIREMENTS DURING JANUARY

Me.	Central Maine Power Co	Bangs	H	126
Me.	Central Maine Power Co	Ledgemere	H	320
N. Y.	Lawrence Park Heat, Light & Power Co	Bronxville	S	300
N. Y.	Long Island Lighting Co	Glenwood No. 1	S	10,500
Pa.	Metropolitan Edison Co	Stroudsburg	H	768
Pa.	Northern Pennsylvania Power Co	Towanda	S	520
Ohio	Ohio Power Co	Coshocton	H	1,000
Mich.	Bellaire Light & Water Works	Hydro	H	100
Mich.	Bellaire Light & Water Works	Int. Comb.	IC	148
Mich.	Consumers Power Co	Grayling	H	90
Wis.	Wisconsin Power & Light Co	Blanchardville	H	60
Neb.	Madison Light & Power Department	Madison	IC	186
Kan.	Central Kansas Power Co	Quinter	IC	220
Md.	Eastern Shore Public Service Co.	Stevensville	IC	500
Va.	Danville Water, Gas & Electric Department	Bridge St.	S	5,000
Okla	Wilson Electric Light & Water Plant	Wilson	IC	480
Okla.	Public Service Co of Oklahoma	Atoka	S	1,000
Okla.	Public Service Co of Oklahoma	Bartlesville	S	2,750
Okla.	Public Service Co of Oklahoma	Allen	IC	180
Okla.	Public Service Co of Oklahoma	Antlers	IC	240
Okla.	Public Service Co of Oklahoma	Clinton	IC	400
Okla.	Public Service Co of Oklahoma	Custer City	IC	92
Okla.	Public Service Co of Oklahoma	Fletcher	IC	275
Okla.	Public Service Co of Oklahoma	Grove	IC	130
Okla.	Public Service Co of Oklahoma	Hinton	IC	104
Okla.	Public Service Co of Oklahoma	Hobart	IC	500
Okla.	Public Service Co of Oklahoma	Hollis	IC	160
Okla.	Public Service Co of Oklahoma	Hydro	IC	150
Okla.	Public Service Co of Oklahoma	Talipina	IC	50
Okla.	Public Service Co of Oklahoma	Thomas	IC	60
Wyo.	Dubois Public Service Co	Dubois	H	100
Wyo.	LaPlata Electric Association, Inc.	Paragona Springs	H	150

H—Hydro, IC—Internal Combustion, S—Steam
United States Capacity as of Feb. 1—Hydro, 20,506,750 kw; Internal Combustion, 2,110,-031 kw; Steam, 59,749,049 kw; Total, 82,365,830 kw.

THE ELECTRICAL WEEK

CONTINUED

of Consolidated Edison of New York, died in New York City March 23 after a brief illness.

Hartford Electric Light is cooperating with public schools in educational program explaining generating plant functions from coal pile to user in the shape of a basic teaching unit . . . Oscar L. Shepard is appointed to Vermont PSC and made its chairman, succeeding N. H. Press.

Potomac Edison promotes D. E. Stultz from vice president of commercial operations to executive vice president . . . Harold Quinton, executive vice president of Southern California Edison, is selected as general chairman of "Invest in America Week" observance, April 12-18, in Los Angeles . . . Oscar L. Chapman, former Secretary of Interior, is elected director of Pennsylvania Coal & Coke.

Lake Superior District Power stockholders subscribed for 25,717 common shares of 29,761 shares offered on 1-for-9 basis at $31 a share; balance of 4,044 shares was taken by Robert W. Baird & Co, underwriters . . . Kidder, Peabody & Co places privately 20,000 shares of 4.7% $100 par convertible preferred stock of Central Louisiana Electric . . . Long Island Lighting plans to sell 100,000 shares of $100 par preferred stock this spring.

Idaho PUC is studying applications of Idaho Power and Utah P&L for rate increases of between 8 and 9½% in irrigation and drainage pumping charges. Hearings were held in Boise on March 18 and 19.

Sen George W. Malone, Republican of Nevada, proposes another Colorado River power dam of 600,000 kw to cost about $325 million. It would be located 117 miles upstream from Hoover Dam . . . Chelan PUD spins fifth generator at Rock Island Hydro Dam which will raise capacity of the plant to 120,000 kw.

IN THE INDUSTRY

Duquesne Light Co and West Penn Power Co both have their headquarters at Pittsburgh. The former serves the Steel City and environs; the latter the less densely settled and rural areas over a wide section of the state. In the past month both companies have been involved in rate rulings of the Pennsylvania Public Utility Commission. Both were denied the increases originally sought. Both were ordered to make refunds to customers. But here the similarity ends.

Rate of Return Differs . . . West Penn was granted a 5.65% rate of return. Duquesne, however, has been granted 6%. This 0.35% difference is difficult to explain. The PUC didn't try. Others can only guess. And any guess can be wrong. But the 0.35% differential is going to mystify and perhaps worry the management of other utilities operating in the state. Let's examine the information available.

West Penn started its rate case in February 1951, by asking for an increase in operating revenues of $4.5 million a year. Two months later the PUC suspended the boost for six months. A few days before the six months were up the commission lifted the suspension "on basis that West Penn had clearly justified the increased rates." A formal order was promised. So West Penn went ahead and started collecting the new rates. A few weeks ago, some 17 months later, the formal order was issued. It cut back West Penn's rates $1,663,840 a year, ordered a refund of the difference between the new rates and the ones that had been in force, and set the rate of return at 5.65% on a fair value of $210 million as computed by the commission.

Duquesne Allowed 6% . . . Duquesne raised its rates by $7,720,612 on Jan. 20, 1951, but cut the increase to $3,556,924 a year the following October when ordered by the PUC. The refund ordered at that time was held up while the case went to the courts on the appeal of the company and of the City of Pittsburgh. The court sent the case back to the PUC for review. On March 18 the commission reaffirmed its 1951 order. This set the rate of return at 6% on a fair value of $208 million.

Duquesne before the recent affirmation of the PUC's order proposed a new $4,787,000 a year increase. The commission has suspended this for six months until Sept. 1 pending investigation and public hearings. When the PUC order follows, there are going to be a lot of Pennsylvania utilities interested in seeing whether the 6% rate of return has been maintained.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Crux of distribution outlay is the number of transformers per mile. They increase in number with increased load density.

Resuscitation from electric shock is successful in 90% of the cases in which it is started within one minute. After 6 minutes it is only 10% successful.

Transformers can be built free of corona. Too bad transmission lines cannot (economically).

One large-dial meter retained on the board can give the operator a feeling of confidence if he has to resort to manual control in emergency.

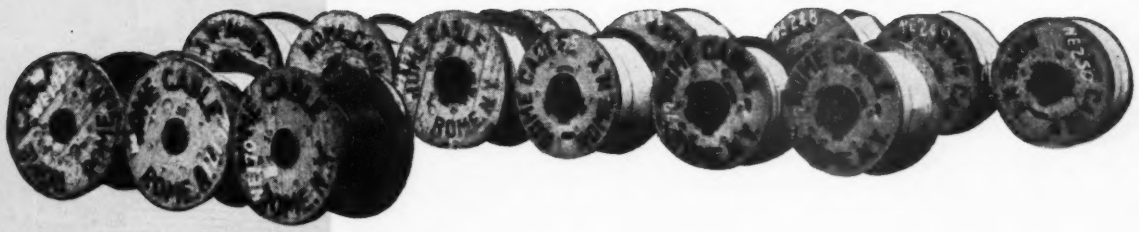
Accidents to linemen usually happen, unfortunately, right under the eyes of the public.

Water-glass stopped rust in the cooling water system for electronic exciter and avoided increase in ground circuit conductivity experienced with other rust inhibitors tried.

Flyash should be disposed of at the plants and not in the courts.

Color-coding of cases may be more significant for similarly shaped electrical instruments on operating panels than for the mechanical instruments which persist in variegated shapes and sizes.

Fault switching of one of two outgoing lines may nearly double the system reactance as seen from the supplying generator and thus make the latter shift 15 or 20 degrees in phase almost instantaneously.



Every foot of RoZone-RoPrene power cable on these reels was corona level tested to assure dependable operation in one of the nation's biggest steel mills. This standard factory testing procedure is one of the big reasons why Rome insulated cables are specified for many critical jobs.

Rome's Corona-Ionization test gives *extra* protection

Specially designed ionization detector for routine factory use measures corona level of all high-voltage rubber insulated cables.

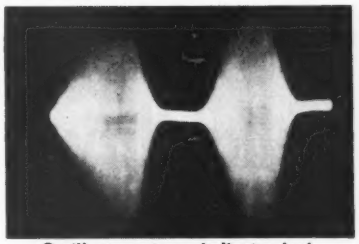
Perhaps you have had the costly experience of installing a reputably high-quality rubber insulated power cable manufactured by a reliable supplier . . . only to have it fail prematurely for apparently no good reason.

Yet, one of the major possible reasons could be . . . internal ionization. This hazard is caused by electrical breakdown of air within the insulation, especially where it has not been closely fitted to the conductor surface or shield.

Several destructive effects may result from ionization. Included are possible ozone cutting, reduced dielectric strength, and a substantial increase in dielectric losses. *And, there is no way of detecting ionization through the visual, physical and routine electrical tests usually applied to cables.*

But you can depend on maximum protection against ionization when you specify Rome power cables. *Every foot of Rome insulated cable, rated at 1000 volts or over, is thoroughly tested by a specially designed ionization detector.* This instrument accurately measures the corona level of the entire cable to assure the ionization voltage exceeds the intended operating voltage of the cable.

This is one more extra step in Rome Cable's standard manufacturing procedure that assures dependability. This completely *NONDESTRUCTIVE* method of testing was developed by Rome Cable engineers and was first described in AIEE paper 48-198, "The Measurement and Investigation of Ionization Level of Rubber Insulated Cables," presented in August, 1948.



Oscilloscope trace indicates ionization within an insulated cable.

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Please send me a copy of ..... AIEE paper 48-198
..... Rome Power and Control Cable Catalog.

Name.....
Company.....
Address.....
City..... Zone..... State.....

Mr. P. A. Abetti, developer of the electromagnetic model, checks connections on capacitance board. Model is:

$\frac{1}{6}$ THE SIZE $\frac{1}{216}$ THE WEIGHT

of actual 33,333-kva core-and-coils in background.

Major G-E development promises new high in reliability of super power transformers

NEW METHOD, PERFECTED OVER THREE-YEAR PERIOD, SIMPLIFIED ANALYSIS OF TRANSIENT VOLTAGES

As the demand increases for power transformers of higher and higher voltage and kva ratings, the problem of predicting transient voltages that may occur in transformer windings becomes increasingly complex.

Engineers have long recognized that a means of determining these voltages quickly and accurately—in the design stage—would permit the most effective use of insulation to reduce the transformer's size and weight while actually increasing its reliability.

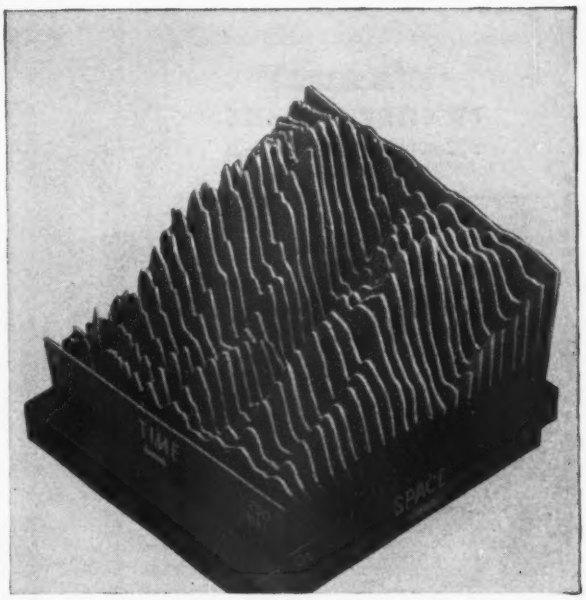
The new General Electric development of testing with electromagnetic models—perfected over a three-year period—offers the first simple, practical method of obtaining complete and accurate knowledge of transient voltages in any power transformer . . . *before it is built!*

These models, a fraction of the size and weight of the equivalent full-size transformer, not only provide a fast, accurate method of testing established designs, but also pave the way for the development of new winding structures, leading to improved reliability.

Among the models that have been built to date is that of a proposed three-phase 250,000-kva transformer, 138,000 to 15,000 volts. The model is 1/10 the length and 1/1000 the weight of the full-size transformer. Four different winding arrangements were tried to determine the most effective structure for this transformer. A model will soon be built of the 300,000-kva, 161-kv transformers now on order.

Electromagnetic models are being used to improve present transformer designs and to develop new winding structures. In special cases, models are being built to determine which winding structure is best suited to meet a particular transformer's requirements. They are also used to determine the performance of a transformer as a component of the power system.

A new tool has been created for accelerating transformer progress. Its successful application is already being reflected in improved General Electric power transformers.

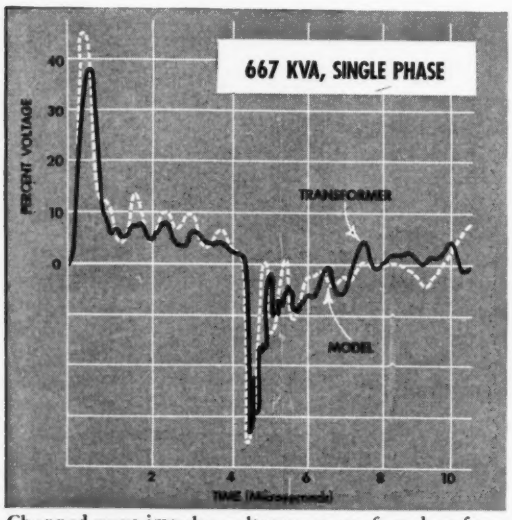


Complicated nature of transients is illustrated by this three-dimensional representation of impulse voltages in a simple helical coil.

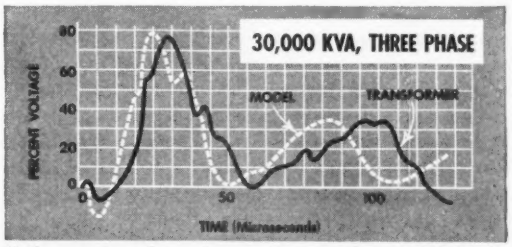
Test results check accuracy of 'electromagnetic models' against performance of actual core-and-coils

The typical oscillograms shown below were obtained between corresponding points of two different transformers (single phase and three phase) and their "models." They show clearly how closely the model predicts the electrical performance of the actual core-and-coils. General Electric Co., Schenectady 5, N. Y.

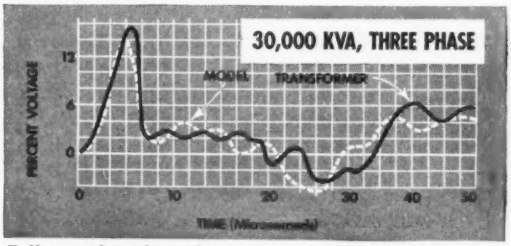
421-6



Chopped-wave impulse voltages across first duct from line end of high-voltage winding.



Full-wave impulse voltages to ground at 36% high-voltage winding from neutral.



Full-wave impulse voltages across thirteenth duct from line end of high-voltage winding.

You can put your confidence in—

GENERAL ELECTRIC

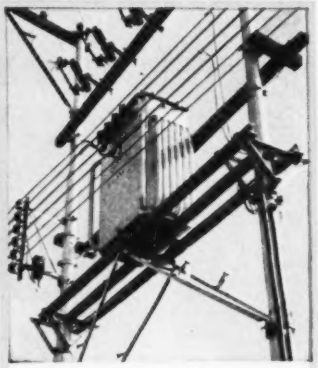
Power Distribution–the South American Way...

While the "South American way" presents some surprising differences in costumes, courting, and customs–the utility companies of our Latin American neighbors distribute power in the most efficient, modern way possible–just like the utility companies of our country.

For example, this modern power distribution system is located at Cali, in Colombia. Three-phase platform-mounted Wagner Distribution Transformers are used in the installations pictured here, while single-phase, pole-mounted Wagner transformers are used elsewhere throughout the system.

Wagner transformers are the first choice of many power companies, both at home and abroad, because they perform dependably for many years with only a minimum of attention.

Wagner manufactures a complete line of distribution, power, and unit-substation transformers. Wagner engineers are qualified to specify the correct transformer for *your* requirements. Consult the nearest of our 32 branch offices, or write us.



Typical three-phase, platform mounted transformer used in Cali, Colombia installation. Thousands of these dependable Wagner transformers are in use throughout the world.

Wagner Electric Corporation
6456 Plymouth Ave., St. Louis 14, Mo., U.S.A.

Wagner Electric Corporation EST. 1891

ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS – AIR AND HYDRAULIC

WT52-5

Decline in REA Loans Expected

Funds authorized for rural electrification purposes are likely to reach lowest point for any year since 1944

Federal loans for rural electrification during the current fiscal year likely will be lower than for any year since 1944.

Economy moves of the new Eisenhower Administration will play a part in the continuing downward trend in loan approvals.

Major reason for the slowdown however is that most of the backbone rural distribution lines have been built.

Peak Reached in '49 . . . Loan approvals by Rural Electrification Administration reached a peak in fiscal 1949 when loans totalling nearly $450 million were approved. By fiscal 1952, loan approvals were down to $165 million. Indications are for the current fiscal year, loans will be less than $150 million.

For the present, the Eisenhower economy order is holding REA loans to the January level of $9.8 million per month. But REA spokesmen are still not clear whether the January figure is intended to be the maximum for any one month, or an average monthly figure.

Loans approved for electrification in February were little more than $5.3 million—one of the lightest months in several years. It is expected that loans for March will be up to the January level and maybe higher. That will depend on the interpretation of the economy order.

Funds Available . . . Here is a recapitulation of REA appropriations available and loans approved during the current fiscal year, which ends June 30:

At the beginning of the fiscal year, the lending agency had total funds available of about $167 million. Of this, approximately $117 million had been carried over from previous years, and another $50 million was appropriated by Congress. In addition, REA has a $50 million contingency fund, which will not be touched this year.

By the end of December, REA had committed some $87 million in loans, or more than half of the $167 million which it had scheduled to spend during the year.

To make additional funds available, REA then engaged upon a course of recalling some of the loans it had made in previous years but which were not likely to be used. This operation is called "recisions." This netted the agency approximately $30 million. Nearly half of this came from the withdrawal of a loan approved several years ago to the Old Dominion Co-op in Virginia.

Economy Order . . . Soon after these loans were recalled, the new Administration's economy order went into effect. If this is continued, it appears that loans during the last six months of the fiscal year will be less than $60 million—or well within the amount of money available for electrification loans.

Recently the Senate voted to transfer $15 million of the electrification funds to the telephone loan fund. This is another indication that electrification loans approved are expected to be considerably below the $197 million available to REA through carryovers, appropriations, and recisions during the current fiscal year.

EEI's Area Development Institute to Hear Cisler

Walker L. Cisler, president, Detroit Edison Co, will address the opening session of Edison Electric Institute's second Area Development Institute to be held June 22-24 at the University of Michigan, Ann Arbor, Mich. His topic will be "People, Land, and the Public Utility."

The institute, which was held at Yale University last year, will be devoted to problems that daily confront utility development departments. Arrangements for the institute with the university require advance registration to be made by April 30.

The program calls for the following utility men to act as chairman for four sessions: John H. Jones, Monongahela Power Co, natural resources and agricultural development; Walter I. Dolbeare, Virginia Electric & Power Co, recreation and travel; Paul V. Hayden, Connecticut Light & Power Co, community development; and Daniel L. Diehl, Pennsylvania Power & Light Co, industrial development.

POWER BRIEFS

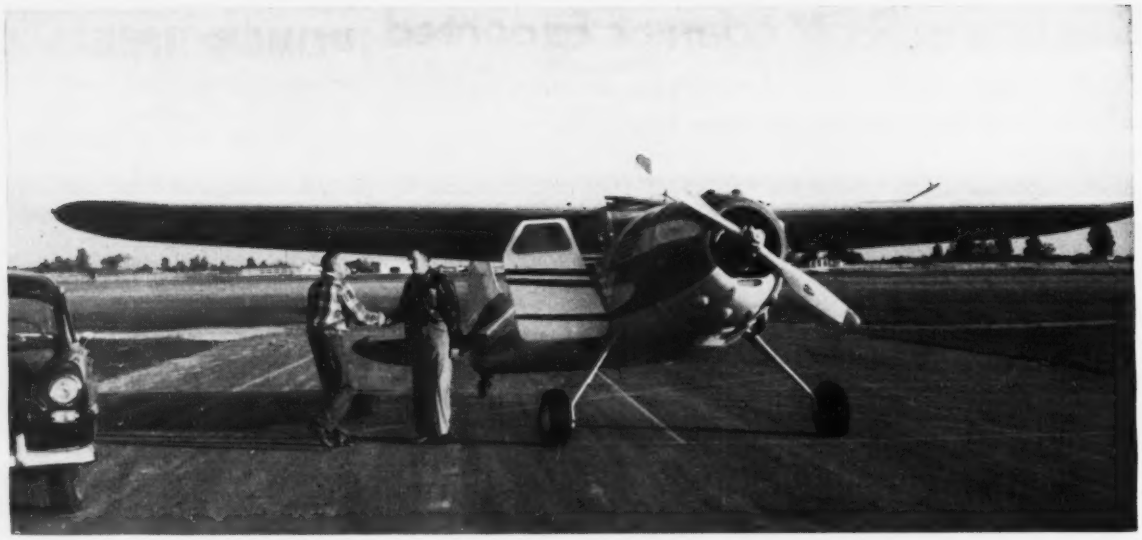
• A possible new world's record for hard rock work has been claimed by a tunnel crew of Walsh Construction Co, now at work at Pacific Gas & Electric Co's powerhouse project on the Pit River in Shasta County. The crew tunnelled 296 ft through medium hard volcanic lava rock in six days, timbering every foot of the way. The tunnel—to be four miles long— is 23 ft in diameter. The 84,000-kw power project Pit 4 power house is expected to be completed in 1955.

• Georgia Power Co has installed a new relay system in Atlanta. The system, which includes extensive remote control and telemetering, cost about $300,000 and required three years to install.

• An American engineer, Chester P. Nielsen, is in Venezuela to make the initial studies leading to the installation of five power plants by the government. He is working with the Stubbins Technical Office of Caracas. A 2,500-kw diesel plant will be installed at Barquisimeto and other plants constructed at Cumana, two in Puerto Ordaz, and one for the Orinoco Mining Co.

• Taiwan Electric Power Co, owned by the Nationalist government of Formosa, is setting up a rate structure under the supervision of Daniel A. Hill, Cleveland Heights, Ohio, representing the J. G. White Engineering Corp of New York City. Hill, formerly with Alliance Public Service Co, Ohio Public Service Co, and Ohio Edison Co, has served as a municipal consultant and in an advisory capacity to the National Advisory Committee for Aeronautics and to the Japanese electric power mission to the United States.

• The Electricity Supply Commission of South Africa has disclosed a six-year program to increase total installed capacity from present 1,700,580 kw to 2,637,580 kw. Involving a total outlay of £103,000,000, the program calls for eight new power stations, a substation, and extensive installation of new equipment throughout the system, which now supplies 70% of power consumed in the Union.



FLORIDA P&L Pres McGregor Smith is greeted by a company man from local office after a flight from Miami in utility's monoplane

Florida P&L Prefers a Small Plane

Utility feels economy and adaptability of its one-engined Cessna contributes greatly to efficient operations

LOWIS INABNIT, Florida P&L Co

A distance two times around the world by air each year for the past five years—that's the flight record of Florida Power & Light Co's company-owned airplane. What's more, the company estimates that the cost of flying the plane an average 58,500 miles each year is little more than the amount required to operate a medium-priced car.

This combination of dependable service and economical operation has convinced Florida P&L officials that their small, four-passenger airplane is an indispensable aid to efficient company operation.

Uses 1952 Cessna . . . "At present, we have a 1952 model Cessna No. 195 which fits our needs perfectly. It is neat and roomy but not luxury-type aircraft," McGregor Smith, FP&L president, said recently. "The single-engine 275-hp plane is much cheaper to operate than a large plane, it is safer to fly, and lands easily on short, bumpy fields. To a company like ours, spread over a far-flung area, these advantages are of vital importance."

Florida P&L serves more than 374,000 customers in 447 Florida communities, scores of them small rural areas without an airport. But if no airport is available, there is no pasture too small nor highway too narrow to accommodate the light plane.

Florida P&L cites another advantage of a small craft: It would glide about ten miles from an altitude of 6,000 ft in case of motor failure, and then land safely at slow speed.

Transportation by air effectively ties together all communities served by FP&L. With the most distant one only 2½ hours by air from executive headquarters in Miami, there are no longer any isolated offices. Average time for each trip is from one to two hours, making an annual average flying time of 390 hours.

PILOT OF FP&L PLANE is Ken Shotwell (left) who does personnel work for the utility. Before taking off on a trip he and President Smith make a last minute check of the flight map

New Plane Each Year . . . Actually in the past five years Florida P&L has owned four small planes. Each year a new plane is purchased and the old one traded in. The one now in use was purchased in May 1952. The practice of trading the old plane in each year for a new one is viewed by the company as an economy measure. Replacing of worn mechanical parts is cut to a minimum, thereby reducing the cost of upkeep.

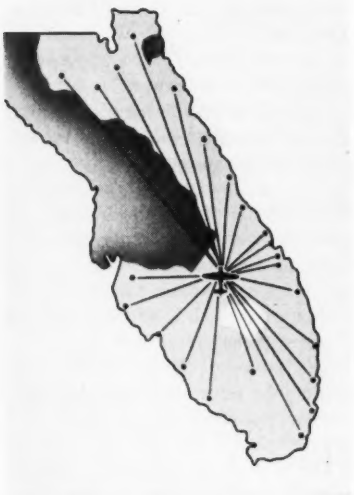
Plane and motor get a regular check every 25 hours of flying time, with thorough additional checks at 100-hour intervals. Because of this careful attention to maintenance, the company plane has never had a motor failure.

Listed below is the total operating cost for the four planes (two Beechcraft Bonanzas, models 35 and 35-A; one 1950 and one 1952 Cessna) used successively in the last five years by Florida Power & Light:

Fuel	$ 7,094
Oil	594
Maintenance	5,165
Hangar Rental	1,531
Insurance	7,596
Depreciation	6,673
Miscellaneous	908
Total	$29,561
Total Miles Flown	291,900
Average Operating Cost	About 10¢ per mile flown (includes all costs except pilot)

Florida P&L has no pilot classification. Ken Shotwell, who pilots the plane, doubles in personnel work during trips over the state and when in Miami.

"While our plane costs a little more to operate than a middle-priced automobile, we feel that the savings in time of our supervisory personnel, and even our vice presidents, more than makes up the difference in operating cost," Smith commented. Traveling by air also eliminates overnight expenses, such as meal and lodging, frequently required on automobile trips, he noted.



FP&L PLANE ranges over most of the state

PATROLLING LINES and surveying work in progress are other jobs made easier with the use of company plane. Here the Cessna dips low to survey FP&L's new H-frame transmission lines

Aid to PR . . . Public relations, too, have benefited from use of the company plane. Speedy transportation enables FP&L officials to be present at practically all important civic functions held in the state. President Smith, who travels more than his associates, attends all kinds of events from festive picnics to sober-sided business meetings. While other presidents of Florida P&L were seldom known outside Miami's city limits, Smith through his frequent appearances has made himself known all over the state.

In addition to shuttling company personnel around the state, the plane is used for regular work like patrolling transmission lines and surveying work in progress, and also in emergencies.

One such occurred in 1948, when a hurricane struck Stuart, Fla. Smith flew to the scene to direct personally repair of damaged transmission and distribution lines and rush restoration of service. The plane was kept busy surveying high lines, bringing in key personnel, and relaying messages by radio until normal communications were restored. As a result, service was restored in record time. Praise for the men, the trucks, cars, and plane that did the job poured into the company from customers, press, and radio.

Because of these contributions to efficient operations and the boost to public relations, Florida P&L believes its Cessna has earned the nickname of "Workhorse" and more than pays for itself.

Operators Set Up Training Course

D. F. DUNCAN, Safety Director, Public Service Co of New Mexico, Albuquerque

Employee training has taken a new twist at Public Service Co of New Mexico. Through cooperation with the extension service of University of New Mexico, employees of the company's power production department are being instructed in practical techniques of steam station operation under a program they themselves set up.

In addition to learning about practices they requested, employees are being readied to:

1. Become instructors in the company's regular apprentice training program.

2. Assume new supervisory responsibilities as the company expands.

Students Make-up Program . . . Although the program is similar to those offered by other educational institutions, it is believed to be the first in which students selected the subjects to be presented. The program consists of five courses: mathematics, physics, steam production, electric power production, and power plant operation and layout.

Mathematics includes arithmetic, algebra and trigonometry, and use of the slide rule. Because succeeding courses require a knowledge of mathematics, the program follows the university recommendation that it be taught first. Physics includes basic principles of heat, electricity and magnetism, mechanics, and fluids.

Steam production covers a range of subjects from types of boilers and flue gas analysis to fuels and feedwater problems. Characteristics of steam turbines are also covered. Electric power production deals with theory and operation of ac and dc machinery and transformers, and includes switchgear, substations, and transmission systems.

Completing the program is power plant operation and layout. This course analyzes such topics as boiler room and turbine room management, plant water supply, and automatic controls.

Films Are Used . . . Texts for last three courses are the Power Plant Series books by Terrell Croft, published by McGraw-Hill Book Co. To supplement texts and other class material, films from several manufacturers are shown to illustrate operation of various components of steam stations, including steam and electrical equipment. The supply of suitable films has been such that one is shown about every other week. Although class time is officially two hours, questions and discussion after class sometimes have run another hour.

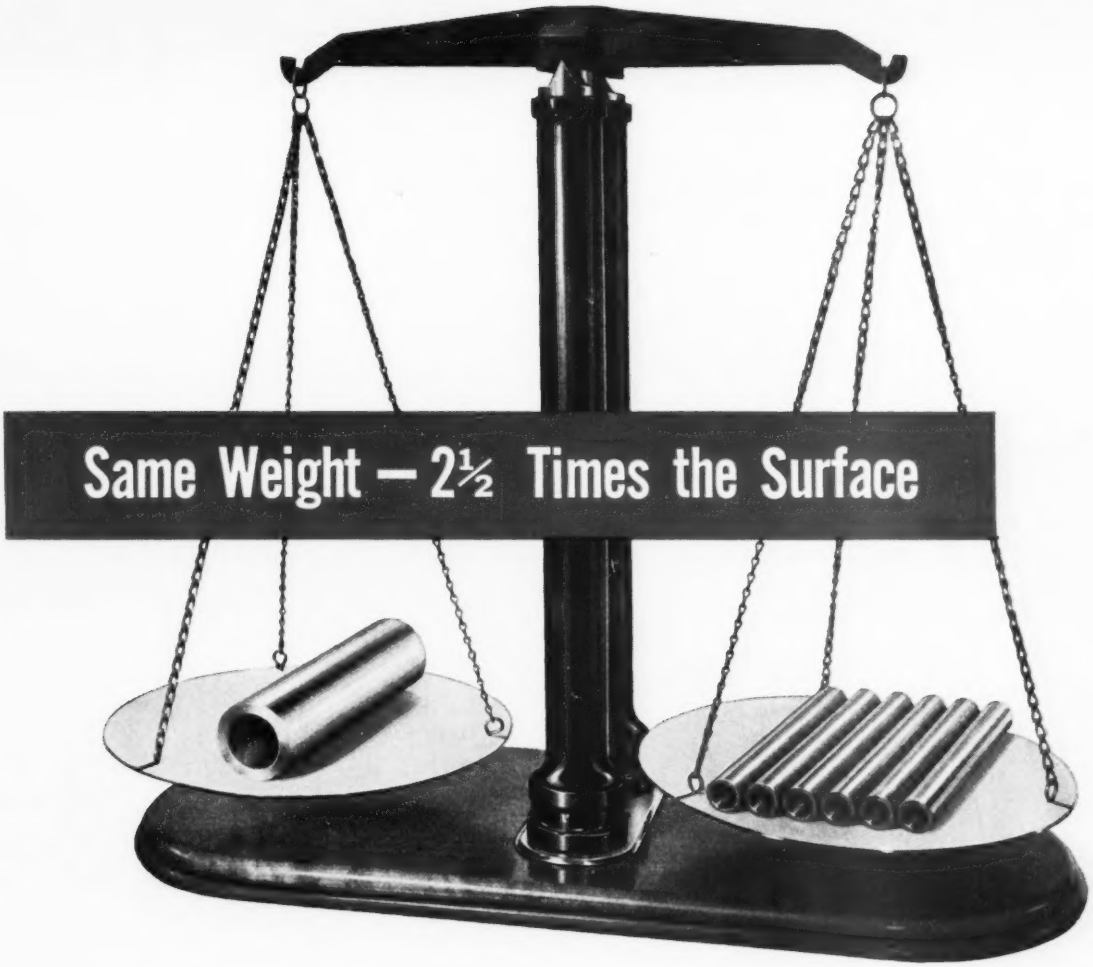
Classes are held weekly on the university campus for a period of 12 weeks per course. Meeting hours have been scheduled to conform with working time of day and night shift employees and free time of instructors. Class enrollments are held to a minimum of 15 and a maximum of 24 students.

Cost of program is $180 per course, or $900 total. As each employee successfully completes half of the course, he is reimbursed 50% of total cost by the company. The remaining 50% is repaid upon successful completion of the entire program. In addition, each student gets a certificate of completion for each course successfully mastered.

Mathematics, English Stressed . . . While the university extension course is outside the regular apprentice training programs set up by the company, it is proving an important adjunct to them. To train employees in each of its five departments—power production, electrical equipment, meter, overhead line, and water—Public Service has established apprentice programs that give the equivalent of a secondary school education as far as college entrance requirements are concerned. In each apprentice program, mathematics and English are included and stressed. Remaining subjects are selected to meet requirements of the particular department. Programs range in length from three years and three months to four years, with 144 classroom-hours per year. In addition, 8,000 hours of actual work on the job are required of each apprentice.

Thus, after a power production apprentice has completed his training, he has the option of taking the extension program or going on for a degree in mechanical engineering. The extension program is a non-credit course insofar as getting a bachelor's degree is concerned. Because of the success of the power production extension program, it is hoped employees of other departments will set up extension courses dealing with their specific jobs once they complete apprentice training. Furthermore, it is expected that a few of them will go on for degrees in engineering, having been given the necessary educational background required by the university.

PRACTICAL TECHNIQUES of steam station operation are taught PS of New Mexico power production department employees in course given by University of New Mexico



The balance scale dramatizes one of the most important advantages of controlled circulation.

On the left side is shown a 1-foot long section of conventional tubing as used in the furnace walls of a natural circulation boiler. On the right side is shown six 1-foot long sections of tubing as used in the furnace walls of a C-E Controlled Circulation Boiler. The weight is the same but the surface area of the small tubes is 2½ times greater. Because controlled circulation permits the use of small-diameter, thin-wall tubes and provides adequate and properly proportioned flow to each circuit it affords the major advantages listed at the right.

Wide recognition of these advantages by leading utilities in all parts of the country has been evidenced by orders over the past 30 months which represent an aggregate capacity of more than 5,000,000 kw.

Fifty per cent reduction in weight of steam generating surfaces for equivalent capacity.

•

Less supporting steel, less building steel and less expensive foundations.

•

Adaptability to higher steam pressures permitting better power station economy.

•

Quicker starting up and shutting down.

•

Greater safety.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT

B-660

COMBUSTION ENGINEERING — SUPERHEATER, INC.

Combustion Engineering Building • 200 Madison Avenue, New York 16, N. Y.

This Little Squirt Can SAVE You MAN-HOURS of MUSCLE!

Save the time your crews spend struggling with corroded, frozen hardware. Fast-acting KEARNEY RUST CUTTER, in its handy, pressurized can, is easy to carry, simple to use. The atomized mist reaches even the tightest spots . . . penetrates the smallest cracks and openings, dissolving corrosion and freeing the frozen part.

Another important economy feature of KEARNEY RUST CUTTER is the elimination of waste. Each squirt is put to work . . . each can goes a long way.

JAMES R. KEARNEY CORPORATION
4224-42 Clayton Ave. • St. Louis 10, Missouri

WRITE TODAY *for Prices and Quantity Discount*

Kearney Products

JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.

For Better Construction . . . For SAFER Maintenance!

LOCAL "BOOSTERS" put up posters in their campaign to conserve electricity

When lack of water cut energy output and threatened the region's economy then . . .

Cooperation

Beat the Northwest Power Shortage

In the Northwest licking power shortages is "old stuff." They come as surely as winter. But the one ended last January was a "toughy" that was licked only by the unstinted cooperation of all elements of the area—the people, the commercial and industrial interests, and the power suppliers.

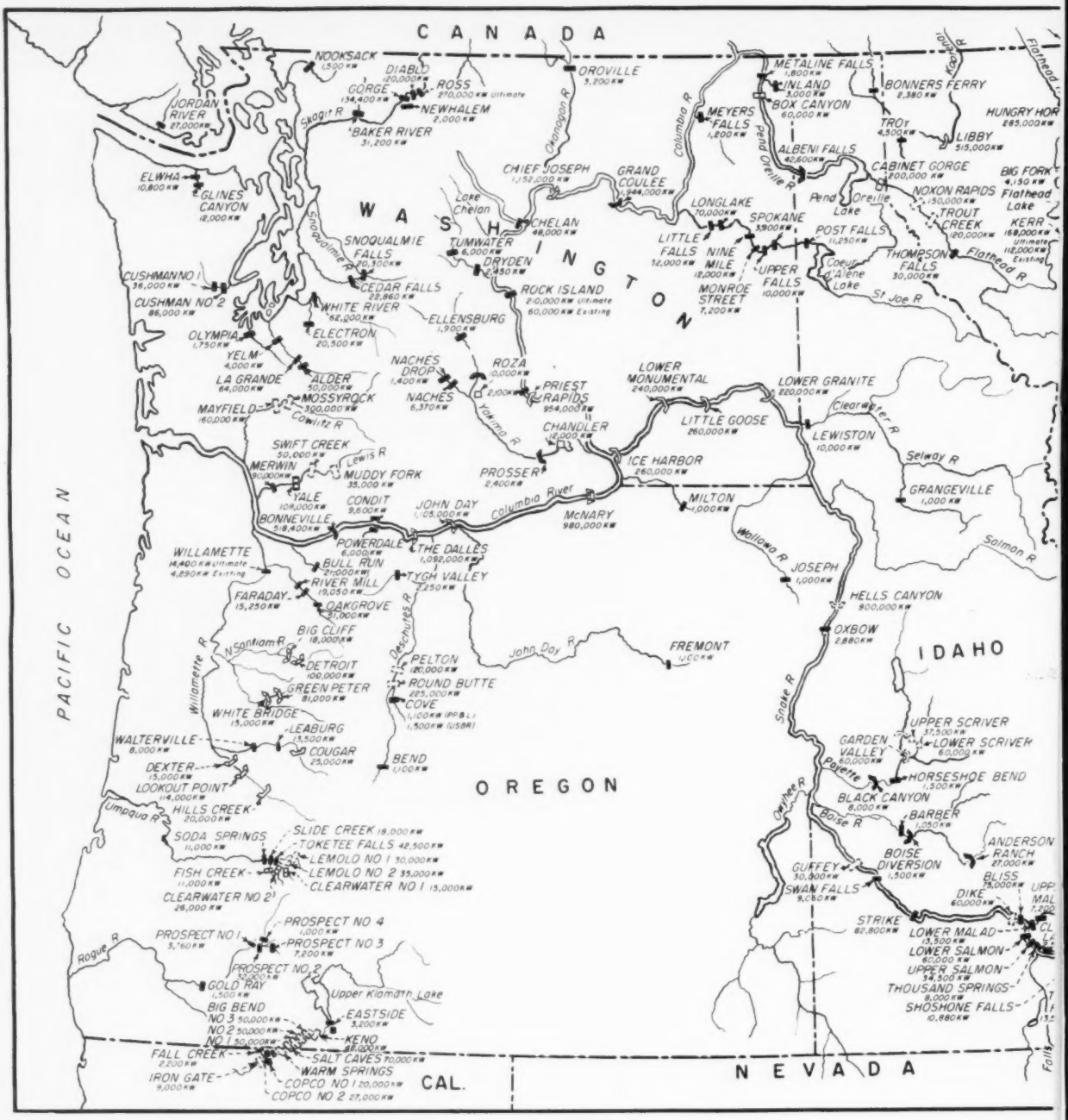
Actually this was not a power shortage, it was a fuel shortage. And in this area, the hydroelectric empire of the world, the fuel is water. When stream flow declines, the water wheels turn less frequently. And soon another Northwest power shortage is making news.

These shortages do not come overnight. Last July the Northwest Utilities Conference Committee warned such a shortage would develop if "median-or-less" water conditions should be encountered in the fall. In August stream flow started a nosedive that quickly cut far below the minimum of record. Bonneville Power Administration, base system for the area, acted promptly and cut off interruptible power. The private companies then put into operation the costly operating steam plants.

By Nov. 17 all users of more than 8,000 kwhr weekly (some 1,100 firms) had their power usage cut 10%. Another 10% cut was narrowly averted by December rains.

The cut-off of interruptible power and the curtailment

Major Projects of the Northwest—Hydroelectric



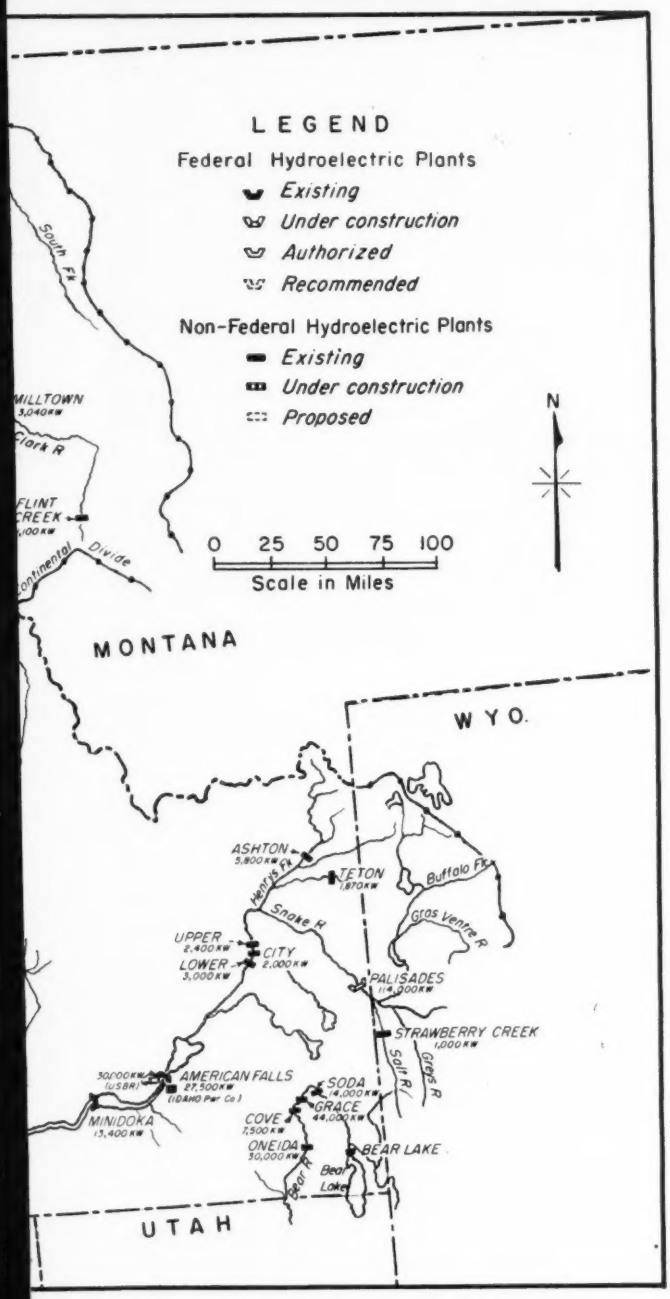
hit the area where it hurt, in the pocketbook. Public response was most immediate in areas where actual unemployment was created or threatened. In Seattle, for example, Boeing Airplane Co employees on their own initiative made a survey of the area adjacent to their plant and listed several hundred concerns that were "wasting" electricity.

The public, meaning the residential consumer, did its part. To make sure that it did an intense publicity barrage was laid down. A publicity subcommittee of the Northwest Utilities Conference Committee prepared a series of advertisements, complete with mats, and radio "spot" announcements which it distributed to its members.

Copy was themed on the idea, "All Night—All Day; Save Electricity Every Way You Can." There was a problem of unselling the 1947-48 idea which had been aimed at a peak hour emergency from 4 to 7 pm. This was a kwhr and not a kw shortage.

The Seattle Chamber of Commerce, with the cooperation of the Defense Electric Power Administration, City Light,

Empire of the World



and Puget Sound Power & Light Co, held meetings at which the shortage was explained. It also distributed suggestions to home owners and businessmen on how they could save electricity at home and on the job. The Seattle Public Schools sent every child home with literature on the subject. Newspapers and radio stations contributed further publicity.

Industries did a remarkable job of keeping their employees on the pay roll. With the exception of the aluminum industry, the firms affected, employing an estimated 100,000 men, were able to avoid layoffs by shortening the work-week and/or work-day. Boeing, the Seattle area's largest single payroll, closed down weekends. This with the reduction of lighting in unessential places achieved the 10% cut in power usage without a lay-off.

Aluminum industry, a big user of interruptible power, was hit hard. Most of the 3,000 workers laid off were in this industry.

Merchants were afraid that the curtailment would affect Christmas sales. It did for awhile, but early in December sales reached a new pre-Christmas high. Workers, who had expected to use their overtime pay for Christmas gifts, kept a close eye on the stores. Stores darkened their signs and eliminated any lighting that wasn't necessary. Downtown Seattle stores figured that in the first month of curtailment they used 500,000 kwhr fewer than in the corresponding month of 1951.

All together it was estimated that 100 million kwhr a week were saved. Of this 65 million kwhr were saved by the interruptible customers, 28.3 million kwhr by the customers affected by the 10% cut, and the remainder by other users.

Power Pool Gets Most of the Credit . . . All this public cooperation would have been impossible if power suppliers of the area had not learned to cooperate in the Northwest Power Pool. Virtually every detail of the operation of the pool during the shortage had been prescribed long before. There was an actual full-dress rehearsal during the peaking emergency in 1948, a sample of serious trouble in 1949, and dry runs in subsequent seasons.

The pool consists of the physical linking of distributing utilities in Washington, Oregon, Idaho, Montana, and British Columbia so that maximum use can be made of the power available from all ten major suppliers. By coordinating the diversity of more than 300 generating units and matching that against the diversity of the different loads, the network has been able to increase its load-carrying capacity by about 600,000 kw.

Pool Aided Depa . . . Organization and operation of the pool is a case study in effective administration. Without the pool Depa would have found it hard to make a dent in the situation. Aided by a five-man advisory board from the pool, headed by Supt J. Frank Ward, Tacoma City Light, Depa was able to operate during the crisis with only one man—Harry A. Lee of Pacific Gas & Electric Co—and a girl in the area.

All pool decisions are on a cooperative basis. The heart of the operating organization is the Operating Committee, one operations man from each major utility, through whom all pool matters are handled. This group meets every four to six weeks with meetings alternating between various cities in the eastern and western regions. Guests include operating superintendents, utility engineers, Army engineers, and Bureau of Reclamation men. The two consulting engineers from Ebasco Services who serve as a coordinating group for the pool attend also.

The meetings are devoted to a review of the operating situation for both the pool and the member utilities. All actions taken are by unanimous vote,

Coordinators Act as Clearing House . . . The coordinating group at Portland acts as a clearing house for the entire group. It also prepares the annual operating programs,

LINCOLN STEAM PLANT of Pacific Power & Light Co in Portland, a standby for peaking periods, went into full operation in September. Plant burns oil or hogged fuel (sawdust and wood scrap piled next to plant) barged from waterside sawmills. Logs in river are for plywood

issues reports and special studies, initiates conferences, and conducts meetings. Operating committee members each week furnish basic data, stream plant operating limitations, power resources, and system limitations to the coordinating group for preparation of the annual operating program. This is a 12-month schedule of operations of plants and reservoirs as required to carry the estimated pool load under critical stream flow.

Since the eastern and western parts of the pool are in different time zones, the eastern part (Montana, Idaho, and Utah) is able to divert power to the western part (Oregon, Washington, British Columbia) after the eastern peak is passed. In the peak hour during the most critical week of the shortage, the eastern part was able to ship in 166,000 kw, primarily from Montana Power Co.

During the same week hydro capacity of the western part totaled 3,158,000 kw at the peak hour. Steam plants added 281,000 kw, British Columbia Electric supplied 65,000 kw, and industrial plants added 143,000. With this aid the western division handled its load without trouble.

Basic runs of hydro generation are scheduled for heavy operation during day load hours so that they may be shut down or motored during the nights. Hydro plants with limited reservoir space or limited water supply are scheduled so this water may be used more efficiently during peak hours.

There are no pool contracts. Pool members pay each other for what they have scheduled at rates they have arranged. There is no fixed price. Utilities keep accounts on their schedule logs. The Operating Committee makes no decisions on policy. By concerning itself with operational problems only, it eliminates potential friction among members.

The Big Worry . . . The biggest worry the area has as a result of the power shortage is that industries will be scared away. The General Petroleum Corp when it could get no assurance of firm power decided to build its own $4-million power plant. Industries unable to afford that kind of expenditures may not look favorably upon the Pacific Northwest as a place to locate. This is especially true as utilities are not allowed to take new accounts using over 300 kw.

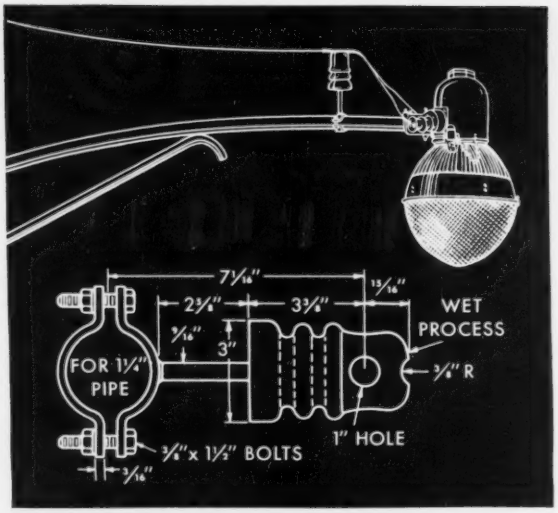
Surcharges Lead to Battle . . . Power systems of the Northwest are built on a base of nearly 200 hydro plants (See map on preceding pages). The region is a long way off from all sources of coal, oil, and natural gas. Whenever it is necessary to put steam plants into operation, costs for the private companies soar. To protect them they are allowed to surcharge their customers 20%. Actually this does not raise bills much above the national average, and they are still lower than in some other areas which have little or no hydro capacity and must also import all their fuel. But the customers don't like it. Especially they do not like being forced to pay a surcharge when customers served by public power agencies escape it.

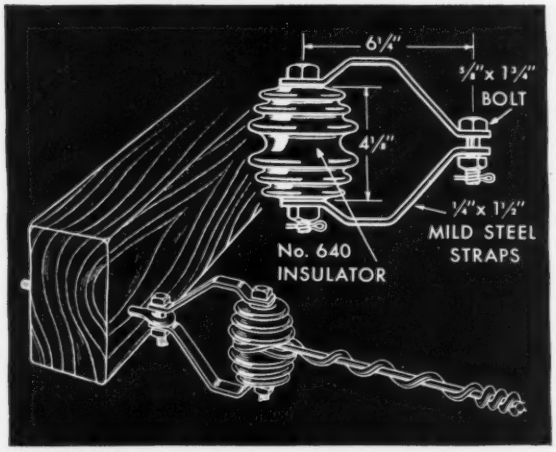
The surcharge has also given public power advocates an opportunity to attack the private companies. Gus Norwood, executive secretary of the Northwest Public Power Association, asserted: "The surcharge is outrageous. It should be abolished and should be completely absorbed by the stockholders of the companies. This could be done as a charge against surplus accounts of the companies."

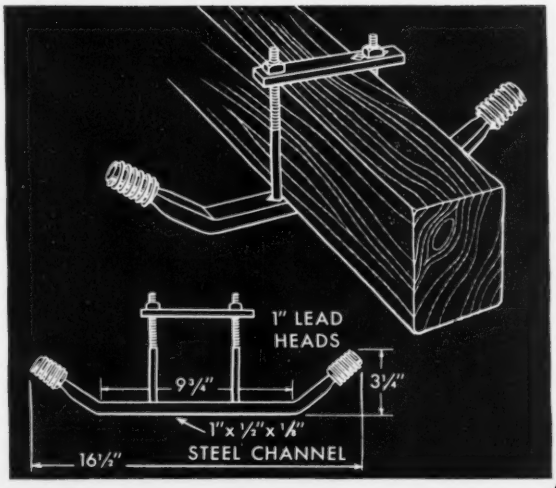
At present there is a move underway to have the power pool absorb the surcharges and divide them among its members, thus affecting all customers. This might be the solution to a highly controversial problem.

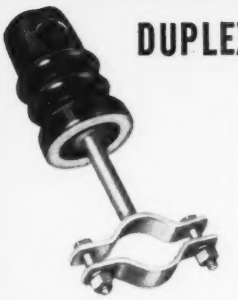
LINE CONSTRUCTION BLUEPRINTS

HOW SOME UTILITIES ARE MAKING CONSTRUCTION WORK EASIER . . .
IN WAYS THAT MAY BE HELPFUL AND USEFUL TO YOU.





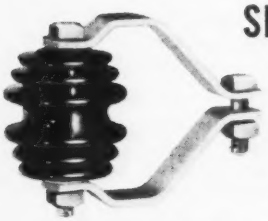




DUPLEX CABLE BRACKET

Cat. No. BA209X3

Installed on a 1¼-inch pipe bracket to provide a rigid insulated support for the luminaire end of high voltage series duplex cable. Simplifies street lighting installations.



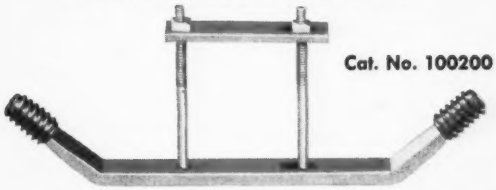
SPLIT DEAD END CLEVIS

with Offset End

Clevis-Cat. No. 1983L
Insulator-Cat. No. 640

Provides a swinging type clevis for dead ends and angles on primary lines up to 4800 volts delta and 2400/4160 volts wye. The cotter pins keep the nuts from turning off of the bolts.

CROSSARM DISTRIBUTION BRACKET



Cat. No. 100200

These brackets carry wires vertically from arm to arm, or horizontally from one end of the arm to the other. Made of heavy steel channel, mounted by two ⅜" x 6" machine bolts threaded 3", and ¼"-thick back strap. For crossarms from 3¼" x 4¼" to 4" x 5".

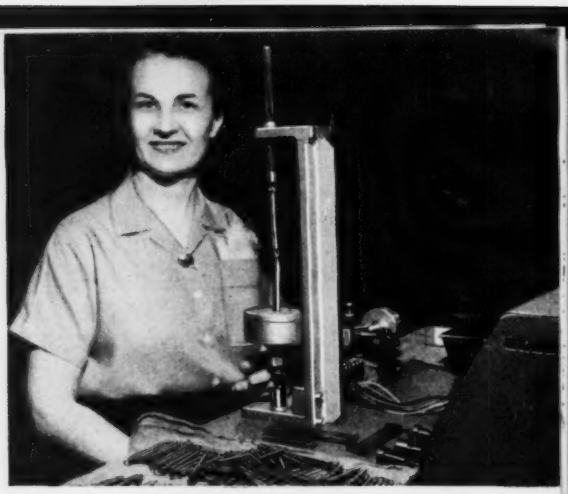
Do you have a line construction problem?

These are just a few of thousands of L-M line construction specialties. If you have a line construction problem, let us know. We may have standard or special items in stock that will solve it. Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division). 114

LINE MATERIAL

Line Construction Materials

Harvey Prine gets ready to crate the 100,000th Kyle Type H Recloser as it comes off the production line. This recloser will be displayed at various L-M and industry meetings.



Alice Flancher, Inspector, is testing springs. "We give every spring an over-tension and under-tension test. One of our suppliers didn't see how we could be so accurate, till he saw the testing machines we designed ourselves. Now he's building one like it. These springs are important to the recloser's operation. I'd sure hear about it if I let a bad spring slip past."

100,000th Kyle® Type H Recloser Comes Off The Production Line

"I guess we at Kyle ought to know something about reclosers. We've made so many of them."

by **OSCAR HANDBERG,**
Foreman,
Assembly Department,
Kyle Products Plant,
Line Material Company

I'd like to tell you why you get so much more value in a Kyle Recloser. That value consists of a lot of big and little things.

First, our engineers have more recloser experience. More experience working in the laboratory, and working with you, on your lines.

Second, there's the company's reputation. We're pretty conservative on ratings, on design. Just "commercially acceptable" doesn't go around here. Every piece of our apparatus has to be *right.*

Third, and most important, is the spirit and pride of the men and women who make Kyle Reclosers. You'd be surprised at how much interest there is, all along the line. Most of our people have a pretty good idea of what a Kyle Recloser does, and what can happen if it should fail. So we have very, very few failures.

Our people want their jobs to pass the plant inspections, sure. But they also want our reclosers to pass the real tests—the tests of shipping and handling, and of bad weather and long years of service.

I guess we at Kyle know something about reclosers. We've made more than a hundred thousand of the Type H alone. That's in addition to the other models, and Sectionalizers and Oil Switches.

We know that you, the customer, are the real boss here. And we feel you appreciate the care and the pride of workmanship that goes into every Kyle Recloser.

Kyle Reclosers provide complete, coordinated automatic protection, from substation to load. Kyle Reclosers have many convenience and safety features. There is a full line of single- and 3-phase Kyle Reclosers, for pole and substation mounting, up to 100,000 kva and 6000 amperes interrupting rating.

For full information about Kyle Reclosers, ask the L-M Field Engineer. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

Bob Bocock, Coil Winder: "I've been winding coils for a long time. You've got to be sure to have the right number of turns on every layer, and the right number of layers. If I didn't do that, the rating would be off, and Jimmy Hall would rib me for weeks. If we nick the insulation or find a bum spot in it, we just toss it out and start over. No use taking chances on a swell piece of apparatus like this!"

Ed Steele, Final Assembler: "Oscar Handberg, my boss, tells me I've assembled more than 85,000 reclosers. I'm proud of them, too. We are all inspectors as the job progresses. Everyone has gotten into the habit of giving a visual inspection to parts as we use them—that cuts rejects to practically nothing, and we know utility men can sleep nights because Kyle Reclosers are on the job."

George Humsic, Grinder: "I'm grinding trip pistons on this centerless grinder. They fit into the hydraulic frames Lloyd Willms is boring. They've got to have a good finish. If they're rough, they might stick and the recloser might not operate as it should. That could be bad. This is a pretty nice machine. We can hold to two ten-thousandths of an inch tolerance. The pistons will get two more checks along the line. So we know they'll fit."

Lloyd Willms, Lathe Operator: "I've just bored and reamed this frame. This Sheffield air gauge checks tolerances down to less than a ten-thousandth. If one of these bores is a little undersize, George's pistons won't fit. If it's oversize, the recloser won't work right —and Jimmy Hall would catch it on final test. But with all the checking we do, there's very little chance of a bad part ever reaching final assembly."

Harold Murphy, Assembler: "This is the hydraulic frame Lloyd just bored, and I assemble it with the piston George has been grinding. One thing that helps is the way we rack these parts to protect them during handling. This mechanism is simple but we sure are careful about dimensions. If we weren't, some day the wrong recloser might lock out when it wasn't necessary. You just don't get careless on *this* job!"

Jim Hall, Tester: "I guess I am the final word—after Ed has put the recloser together in final assembly, it comes to me and I test it for calibration. The timing of the Kyle Recloser is in the hydraulic system, so after I have made sure of this calibration there is really nothing that can happen to it to change its timing. Believe it or not, in 100,000 reclosers, we have never heard of a part in the hydraulic timing system wearing out. I guess that must be because they all work under oil."

LINE MATERIAL

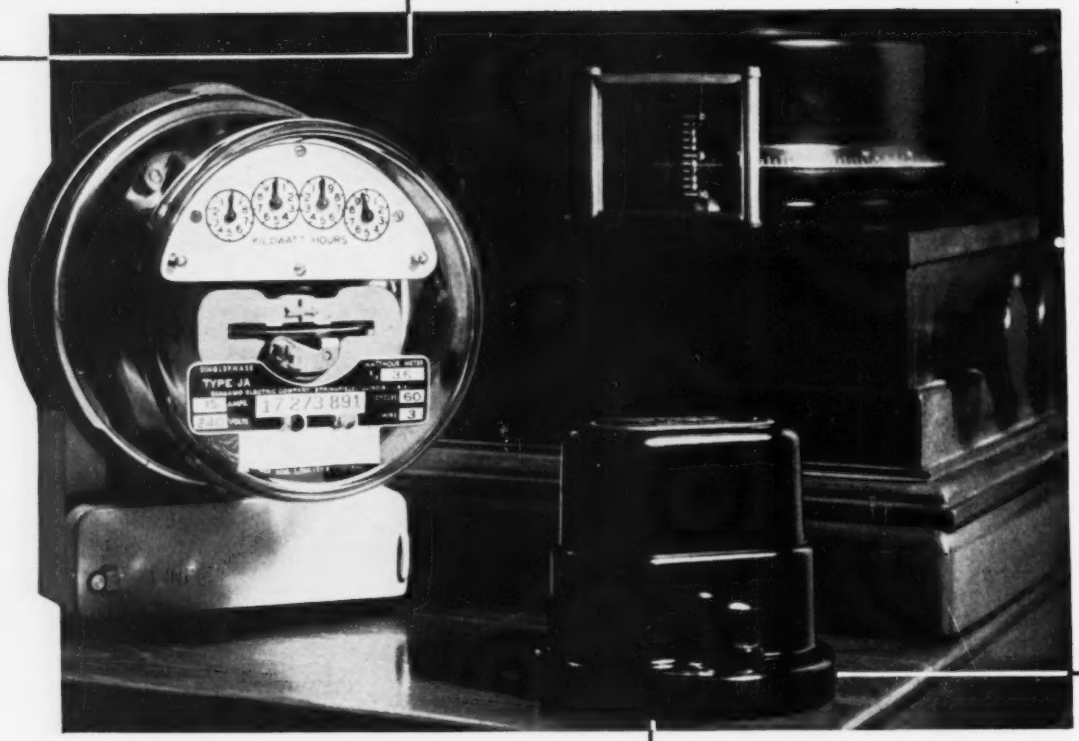
Kyle® Reclosers

COMPLETE COORDINATED AUTOMATIC PROTECTION FROM SUBSTATION TO LOAD

because Kyle Reclosers are on the job."

a full measure of metering dependability

Sangamo J Meters

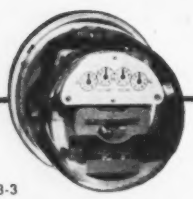


Just as the Standard Cell and the Potentiometer are the basis of all precise laboratory measurements of electric energy, so is the Sangamo Type J meter a precision commercial instrument on which Utilities may equitably base their charges. The meter is an implement in the sale of electric power—the return on your investment.

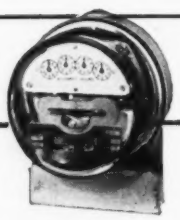
Sangamo Type J Meters are designed to operate with high accuracy for many, many years. Each mechanical part is doweled so its position cannot shift, even under extreme vibration or through temperature changes . . . Magnetic gaps are fixed . . . The calibrated accuracy of Type J Meters is exceptionally stable. Sangamo's program of special anti-corrosion treatment of parts and selection of materials prevents meter deterioration on outdoor installations, even in severely corrosive atmospheres.

Careful attention to those performance characteristics most needed by electric utilities to measure accurately customers' loads with minimum maintenance has always guided the design and manufacture of Sangamo meters.

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS



Only Measured Facts are Known Facts



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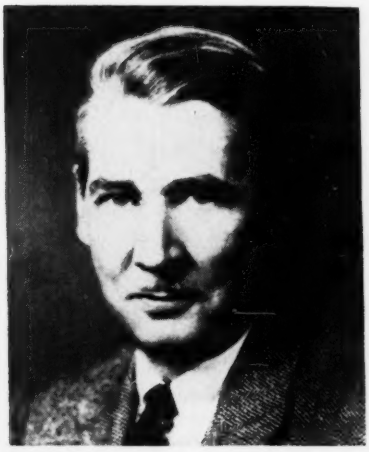
NEWS ABOUT PEOPLE



ROBERT R. HABBERLEY

EDWARD T. AUGUSTINE

Robert Habberley Is Elevated

Western Massachusetts Electric's veteran employee is made operations vice president. Augustine advanced

Robert R. Habberley, vice president of Western Massachusetts Electric Co, has been appointed vice president in charge of operations for the utility. Edward T. Augustine, assistant general superintendent, has been named general superintendent to succeed Arthur L. Davis, who has retired.

To Conduct Operating Study . . . Davis, who has filled the superintendent's post since 1944, has been retained until next fall by Western Massachusetts to make a special study of its operating organization.

The utility has also made Willard D. Fessenden and Allen Abercrombie assistant treasurers.

Habberley joined the company's engineering department in 1930. In 1945 he was named assistant general superintendent in charge of all divisions and late in 1946 was appointed director of economics, moving from Springfield to top executive headquarters at Greenfield. Three years later he was elected a vice president, remaining in Greenfield.

Began as Planning Engineer . . . Augustine entered Western Massachusetts' engineering department in 1929 as a system planning engineer. From 1932 to 1944 he was resident engineer of the Pittsfield Division and assistant chief engineer of the company from 1944 to 1946. At that time he was assigned to the post of assistant general superintendent.

With the utility since 1921, Fessenden served as cashier and assistant tax consultant before accepting his new appointment. Abercrombie, who joined the company in 1946, was office manager and chief accountant of the Central Division prior to his new assignment.

Davis' employment with the company began in 1931.

General Electric Assigns 5 Executives to New Posts

General Electric Co has named five executives to newly established posts in its Apparatus Sales Division, Schenectady, N. Y.

They are: Andrew K. Bushman, manager of engineering; Arthur R. Hines, manager of Southern field sales; John J. Huether, manager of sales; Howard F. McCullough, general manager of service shops department; and Horace Zimmer, manager of Northern field sales.

In addition to the new appointees, the division now includes Gerald L. Phillippe, manager of finance; John A. Spencer, manager of employee relations; J. Stanford Smith, manager of advertising and sales promotion; and Woods McCahill, counsel.

Bushman, who started with GE in 1912, has been manager of industry engineering and sales in the Apparatus Sales Division since 1951. A 32-year veteran of GE, Hines has served as a commercial vice president of the Marketing Services Division for the past year. Huether, who began his GE career in 1922, has served since 1949 as manager of the electric utility sales department.

With GE since 1930, McCullough was promoted to manager of the apparatus service shops section in 1949 after filling the assistant manager's post for a year. Zimmer has been manager of field sales for the Apparatus Sales Division since 1951. He joined General Electric in 1916.

•

H. J. Turner, who has been superintendent of South Carolina Electric & Gas Co's Plant Hagood, Charleston, will be made superintendent of Plant Urquhart, Aiken, when it is activated this summer. Turner's assistant superintendent will be **Wilder Skidmore,** formerly with the Delaware Power & Light Co. **Farmer Sullivan** will move up from assistant superintendent to superintendent at Plant Hagood. Assistant superintendent at Plant Hagood will be **Virgil Summer,** formerly combustion engineer at Parr Steam Plant near Columbia.

Crawford Pilcher, former assistant attorney general for Georgia Public Service Commission, will succeed **Perry Knight** as a member of the commission when the latter retires April 1. Knight, who has served almost continuously as a commission member since 1928, will be appointed commissioner emeritus by Gov Herman D. Talmadge.

Arizona PS Appoints 3 Division Managers

Arizona Public Service Co has regrouped all of its service operations into three divisions—Phoenix, Northern, and Southern—to replace the utility's previous Valley and State Divisions.

Managers of the new divisions are William P. Reilly, F. T. Fahlen, Jr, and Lee H. Poe.

Reilly, who previously managed the Public Service State Division, will

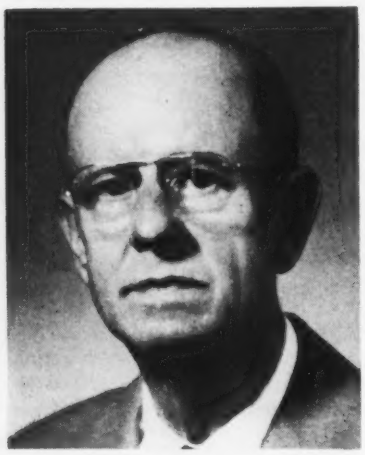
head the Phoenix Division, including metropolitan Phoenix, Sunnyslope, and Tolleson. His aide will be H. H. Idle, former Yuma district manager.

Fahlen, formerly in charge of the company's Valley Division, will manage the Northern Division, which includes the Wickenburg, Prescott, Winslow, Globe-Miami, and Chandler districts.

Poe, manager of the Phoenix district operations since 1947, will be in charge of the Southern Division, including the Buckeye, Yuma, Casa Grande Valley, and Bisbee-Douglas districts.

C. G. Ekstrom, system dealer coordinator, has been named Southern Division sales manager. George Hill and Jack Kiedaisch will fill similar positions in the Northern and Phoenix Divisions, respectively.

Succeeding Idle in Yuma is L. R. Kimmich, former Winslow district manager. R. B. Nairn becomes Winslow district manager. His post as Flagstaff manager has been filled by Harry Dunfee, sales representative.



O. W. KLINGSICK

Day-Brite Names 4 VPs

Day-Brite Lighting, Inc, St. Louis, has advanced Vice President O. W. Klingsick to the post of executive vice president. In other appointments, James F. Whitehead, Jr, was promoted from general sales manager to vice president in charge of sales. O. C. Klingsick, who has been in charge of operations of the firm's St. Louis and Tupelo plants, was made vice president in charge of operations. William S. Coffing, formerly comptroller and office manager, was named vice president-comptroller.

Personnel Changes Made by Fairbanks, Morse & Co

Fairbanks, Morse & Co, Chicago, has made several personnel changes in its organization.

B. R. Eng, with the company for many years in various capacities in the Administration Accounting Division, has been appointed assistant comptroller. J. E. McQuilkin, general auditor, has moved to Montreal, Can., where he is now assistant to the president of Canadian Fairbanks-Morse Co, Ltd.

Formerly director of engineering, Frank M. Mason, Jr, has been named co-ordinator of United States government business. J. F. Weiffenbach, formerly vice president in charge of manufacturing of Canadian Locomotive Co, Ltd, Kingston, Can., has been assigned to the post of chief product engineer of the Manufacturing Division with headquarters in Chicago.

J. R. Walsh, manager of the Stuttgart (Ark.) Works since 1948, has been promoted to manager of the company's new plant now nearing completion in Kansas City, Kan. W. P. McAnally, formerly supervisor of production at Stuttgart, succeeds Walsh as manager of the Stuttgart Works.

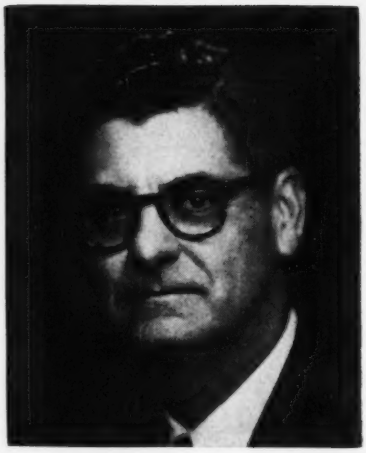
•

Herbert M. Walne, home service director and residential sales manager of Dallas Power & Light Co, has been advanced to advertising manager. **Robert M. Douglass,** supervisor of residential service, was promoted to fill Walne's post. Walne, with the company since 1935, supersedes P. M. Rutherford, Jr, new head of the commercial department (EW, Feb. 23, p 199).

John R. Calhoun, supervisor of operations at the O. H. Hutchings Station of Dayton Power & Light Co, has been named assistant manager at the station.

Curtis Meyer has joined Harnischfeger Corp, Milwaukee, as sales manager of its Electric Hoist Division. Previously he was a vice president of Milwaukee Electric Tool Corp.

Jack Snyder, formerly associated with Georgia Power Co, has been named manager of the Upson County (Ga.) Rural Electric Membership Corp. Snyder has served the co-op in an advisory capacity in recent months.



Appointed Executive VP

Ray N. Leach, vice president and sales manager of Jasper Blackburn Corp, St. Louis, has been elected executive vice president. Leach has been associated with Jasper Blackburn and predecessor firms since 1928. The company also appointed Key Way as sales manager and K. G. Klotz as treasurer.

•

A. M. Sanson, Jr, has been named sales manager of T. J. Cope, Inc, Philadelphia. He will supervise sales of the company's line of cable installation equipment. Before joining Cope, Sanson was district manager of "Electrical Construction & Maintenance" and "Electrical Wholesaling" for McGraw-Hill Publishing Co in Philadelphia.

Harold C. Dean, vice president of Consolidated Edison Co of New York, Inc, since 1945, has retired. Prior to his association with Con Edison, he served first as vice president and then as executive vice president of Queens Electric Light & Power Co, which merged with Con Edison in 1945. He entered the utility field in 1916.

Charles Goforth, commercial manager of the Marlin (Tex.) Division of Southwestern Electric Service Co, Jacksonville, Tex., has been transferred to Dallas to become a member of the company's commercial and industrial staff. His successor at Marlin is **Roy H. Johnson,** who for the past 15 years has been the utility's manager at Rosebud, Tex. **Hilton Houpt,** who has been with Southwestern Electric at Rosebud for several years, will take over Johnson's duties there.

No. 5
IN A SERIES

AN ENGINEER ASKS —

"why, even in severe sleet storms which caused conductor and tower failures, have we never had a mechanical failure with a PINCO 1060?"

HERE'S THE REASON

The answer to this question can be summed up in one statement . . . it is because Pinco Suspension Units are *designed and built to meet service needs* and not just to meet specification requirements. In other words, the correct basic design and rugged construction of Pinco Suspension Units provide extra mechanical and electrical strength for that added margin of safety even under the worst operating conditions.

PINCO SUSPENSION INSULATORS are *better* insulators because—

they are 10% HEAVIER!...

at least 20% STRONGER!...

and 25% BETTER ON IMPACT TESTS!... proof that they are always "RIGHT for the Job" and "RIGHT on the Job." Remember this when you specify and buy suspension insulators.

• *For complete information regarding the Pinco 1060 and other Suspension Insulators, refer to Pinco Catalog No. 49, Pages 62 to 73.*

PINCO INSULATORS

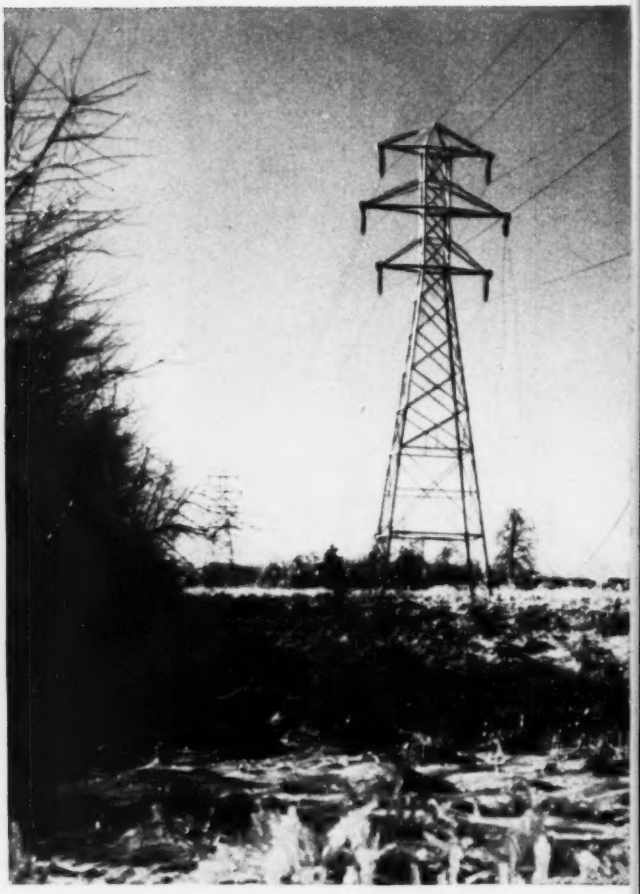
RIGHT ON THE JOB—

The Porcelain Insulator Corporation
LIMA, NEW YORK

Sales Agents:
Joslyn Mfg. & Supply Co.
Offices in
Principal Cities

Ice like this ↑

Did damage like this →



TEMPERATURE DIFFERENCES between conductor elevations caused this damage. Ice on the upper conductor sagged it to the level of

Emergency Procedures of Utilities

Predetermined emergency procedures put into effect in the Jan. 9 ice storm were proved-in for electric utilities in eastern Pennsylvania, northern New Jersey, southeastern New York, and western Connecticut. Companies reported they were put into operation without difficulty. One reason for their smooth operation was that they are reviewed thoroughly after each emergency. One company has annual and another semi-annual reviews because of previous storms.

For future service the emergency procedures seem to need little if any revision. Additions may be made after field reports are analyzed. Some things to be considered are: Changes in facilities and stores, relocation of some crews in the division, and modifying functions of personnel in commercial, accounting, and purchasing departments.

The Storm . . . This ice storm was a progressive type. Precipitation actually began in the evening of Thursday, Jan. 8, with intermittent freezing. After dawn Jan. 9, the freezing rain became more intense, continued through the day and that night and through the 11th in Connecticut. Reports indicated that 250,000 customers were without service (EW, Jan. 19, p 8). Atmospheric conditions were different and the service outages much greater in comparison to the two severest storms in the same areas—the wind storm of Nov. 25, 1950 (EW, Dec. 4, 1950, p 88; Nov. 5, 1951, p 115) and the sleet storm of Jan. 1, 1948 (EW, Jan. 10, 1948, p 4).

Competent Aid Available . . . One feature of the emergency procedure was the availability of competent help. Trained crews were secured from other divisions of the affected companies and from neighboring utilities and outside organizations. The latter aid was facilitated by a list of key personnel previously interchanged.

Communications . . . Two-way mobile radio was the biggest asset to the utilities during the storm and service restoration. No difficulty with this method of communication was reported. Microwave radio served one company for supervisory and other operations. Telephone and leased wire services were said to be about comparable. They were interrupted too frequently because of circuit failure.

lower, ice-free conductor. When wind swayed conductors together, the two burned down

REMOVING ICE-COATED BRANCHES from ice-ladened secondary and street-light circuits to prevent repeated breaks was a slow job that kept many utility line crews at work for hours

Prove Soundness as Ice Storm Hits

Line Outages . . . About 2 am on Jan. 9 minor outages were reported. About 7 am the loads dropped suddenly; so a state of emergency was declared. The emergency was lifted in 3-4 days in most areas, but one continued for 9 days.

Most outages were caused by ice-coated tree limbs bending and falling on the lines, adding their weight to the ice-laden conductors. Comparatively few falling trees took down distribution lines.

Common occurrence in the restoration of service was repeated breaks on the same lines. A pumping station in Northern New Jersey had service restored nine times because conductors broke at different locations on the feeder. One company serving an area of approximately 1,800 sq mi had 7 breaks on 115-kv lines, 80 breaks on 33-kv lines, 3,000 breaks on primary distribution and series street lighting, and 154 poles down. Another company had 967 miles of transmission lines and 3,678 miles of distribution lines out of service.

Transmission Circuits . . . Damage to transmission lines was caused primarily by heavy ice, as much as 2-in. radial thickness. Another cause of trouble was temperature difference during the storm in as little as a 10-ft change in elevation. In a vertical configuration ice-coated upper conductors were weighted down to almost the normal sag of the ice-free lower conductor. Contact during swaying caused the conductors to burn down.

Two 132-kv circuits had no service interruptions. They are designed for ½-in. ice and 8-lb wind, plus an addition for 1-in. ice for vertical loading.

Distribution Circuits . . . Open-wire distribution lines were more vulnerable to the freezing rain and the broken, ice-coated limbs. From a design standpoint, current capability of conductors, spacing, and pole span for both copper and aluminum conductors were satisfactory.

Self-supporting aerial cable is used in comparatively short lengths and is reported to have stayed up 100%.

Service Drops . . . Several utilities are using aluminum triplex with neoprene jackets and bare neutral for the service connections. All reporting

DISTRIBUTION CIRCUITS were especially vulnerable to freezing rain and overhanging ice-coated tree limbs. Unlike most storms this one did not bring lines down by toppling trees

companies use a 3-spool rack on the pole. A knob or other single anchor on the house often pulled out when ice formed on the service drops. Racks on the houses gave no trouble.

Material . . . Line materials were readily available either from stores in the stricken area or from other divisions. Manufacturers responded quickly. One utility found that it would be short of No. 4 wp copper conductor and placed an order for 50,000 lb (325,000 ft) at midday. The manufacturer discontinued a run in the machines, substituted the emergency order, and delivered the wire about 40 miles at the utility's store by 7 pm.

Pole Equipment . . . Poles on tangent lines were not so seriously affected as poles carrying angle runs. For the latter as many as 3 to 8 poles would fall or break especially if a transformer was on one of the poles.

Guying for poles apparently was adequate in most cases.

Many crossarms failed because of the additional ice weight on the arms and conductors. Most breakage was at the through-bolts.

Wood pins gave trouble probably because of rotted thread in the arm. Steel pins apparently gave no trouble.

Pole breakage occurred most often about 3 to 6 ft below the lowest crossarm. Very seldom did the pole break at the ground line. This prompts the question—Should the upper portion of a pole be inspected and given a treatment periodically, the same as at the ground line?

Transformers . . . Distribution transformers did not break loose from the poles. Self-protected transformers were not damaged but locked out when secondaries crossed. One utility using conventional, oil-filled transformers and many cutouts replaced some transformers because of failures.

Other Equipment . . . Lightning arresters had no outages attributed to them. Cutouts gave no trouble for two utilities, but some failed for a third company. Some fuses functioned but no failures were reported. Only one circuit recloser failed to close on the third trip. One utility is returning to the use of reclosers on 4-kv circuits. A manually operated sectionalizing switch failed when a shear pin yielded because the ice-bound switch would not open.

POLES USUALLY BROKE about 3 to 6 ft below the lowest crossarm. The guys were usually satisfactory. Here one prevented the broken pole top from falling on a main highway. Such breakage gives rise to thought that upper and lower halves of poles need equal attention

INDUSTRIAL RELATIONS

Course for CEICo Executives

First group completes "Progressive Management" program conducted by top-flight specialists brought in by the utility

Recently a carefully chosen group of 20 Cleveland Electric Illuminating Co executives completed the company's first course in "Progressive Management."

This course consisted of 11 lectures and covered the broad phases of management. The meetings were held one day every other week in the Hotel Cleveland. CEI brought top-flight specialists to Cleveland to lecture to the group. The men chosen to give one-hour lectures were: Lawrence Appley, president of American Management Association, Dr Leo Wolman of Columbia University, Prof Erwin H. Schell of Massachusetts Institute of Technology, and Dr Joseph C. Bailey of Harvard University. A usual question period followed each lecture.

Meeting Discussions . . . But instead of dropping a subject at the end of a session, CEI used an unconventional discussion technique to strengthen the men's ability to lead and participate in the meetings that are an important part of their working day.

Two members of the group were chosen at the end of each session to prepare and lead an hour and a half discussion of the day's subject at the next session. Leaders had the problem of relating the general material of the lecture to specific CEI situations.

To insure lively discussions, CEI retained an outside consultant, Dr Robert W. Shurter of Case Institute of Technology, on conference leadership who met with the discussion leaders and guided their choice and use of varying discussion techniques. Preparation usually required a one or two-hour session with the consultant and F. W. Becker, CEI's coordinator of management development, plus time to prepare charts and other material used in the discussion.

Lunch with Top Officials . . . The meetings started at 10:30 a.m. Up until noon the group discussed the previous session. They were then joined for lunch by top company officials.

Following the day's lecture and question period, the group chose the next meeting's discussion leaders. They received a list of suggested reading material which they could obtain from the CEI library. The men were back at their desks shortly after 3:30 p.m. Until the next meeting these discussion leaders are busy getting the material ready for the next meeting.

In developing the inventory and appraisal method leading up to the Progressive Management Program, CEI hopes to accomplish some specific objectives that are necessarily excluded from other phases of executive development.

Participants are made aware of the fact that the company is interested in their progress and development and is helping them to know and use the tools of progressive management, not only for the company's benefit but for the executive's personal achievement. When a man realizes this, it is felt, he is spurred on to make greater efforts at self improvement.

By bringing the men together in intimate groups, their relationships are strengthened and they gain a common understanding of CEI's plans and objectives which in turn broadens their interest and scope of thinking about the company and leads them to create and work in a cooperative atmosphere, CEI feels.

LABOR BRIEFS

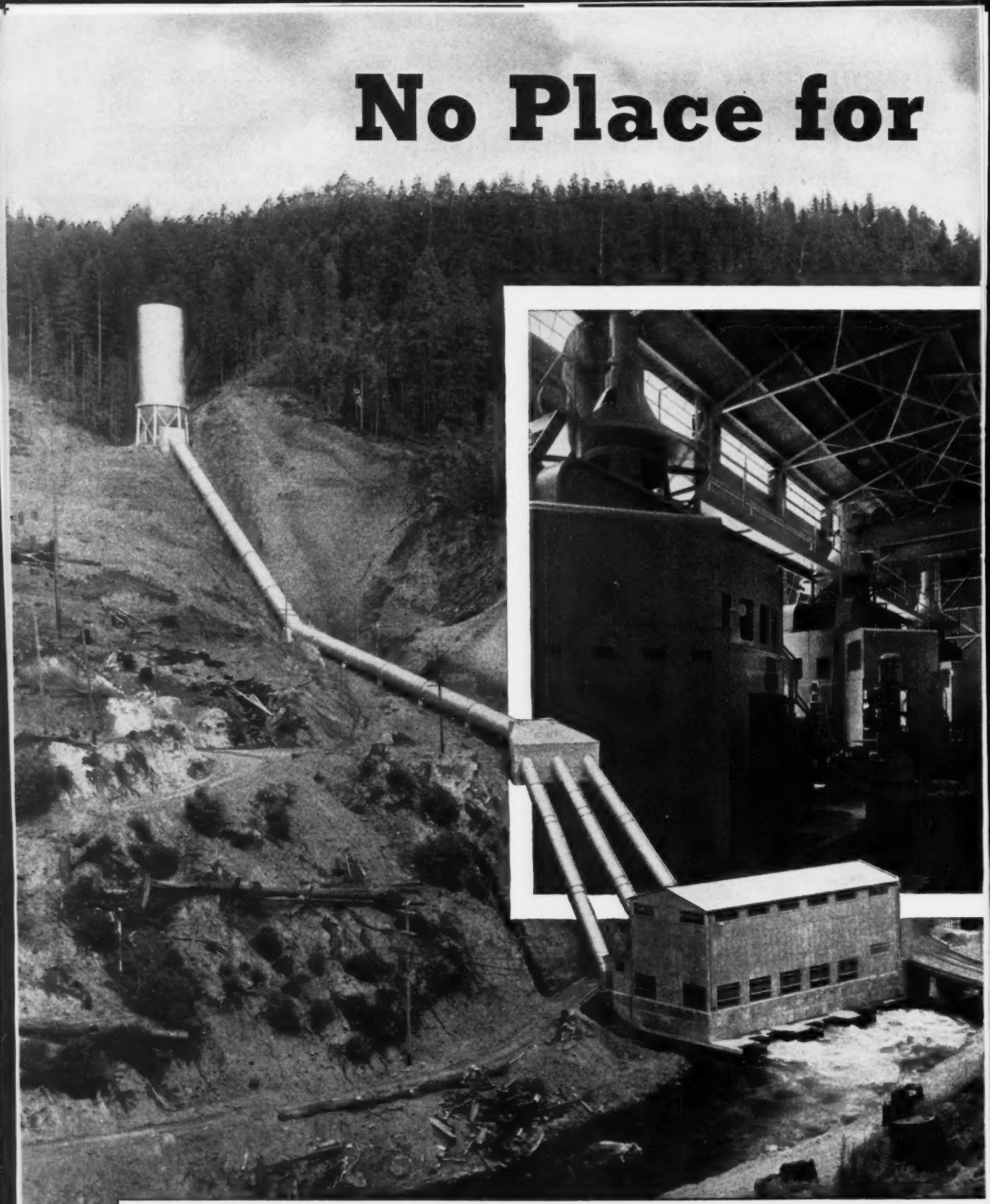
Appalachian Electric Power Co and International Brotherhood of Electrical Workers, AFL, have agreed to 5% wage hike . . . **General Electric Co** has proposed a wage boost averaging 3¢ an hour for 205,000 of its employees. International Union of Electrical Workers, CIO, Pres James B. Carey called the offer "insulting."

ENGINEERS–KEY TO PROGRESS
BUILT TO SERVE THE EVER INCREASING DEMANDS OF OUR INDUSTRIAL, COMMERCIAL, FARM AND RESIDENTIAL CUSTOMERS.
NATIONAL ENGINEERS WEEK
FEB. 22-28, 1953
NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS

Engineers' Display at Utility Office

Edwin W. Sanford, P.E., Mayor of Altamont, N. Y., and vice president of Albany County Chapter of New York State Society of Professional Engineers, left, looks over the Engineers' Week Display with George W. Turnes, P.E., secretary of the chapter. Part of the national celebration of Engineers' Week, Feb. 22-28, this novel display, located in the main office of the Niagara Mohawk Power Corp at Albany, N. Y., attracted the interest of the hundreds of people who visited the office daily.

No Place for



Equipment for Power: Water Conditioning equipment, chemicals and service . . . Steam and Hydraulic Turbines . . . Generators . . . Condensers . . . Steam Jet Air Ejectors . . . Power Plant Pumps and Motors . . . Transformers . . . Circuit Breakers . . . Switchboards and Control . . . Switchgear . . . Unit Substations . . . Utilization equipment.

ALLIS-

Weaklings!

Equipped with three Allis-Chalmers 16,667-kva, 6900-volt, 400-rpm, suspended-type synchronous generators installed in 1949, The California Oregon Power Company's Toketee Falls station acts as the supervisory plant for remote control of several isolated, single-unit stations.

For information about Allis-Chalmers hydraulic turbine driven generators, write for Bulletin 05B7549.

Limited Accessibility of The California Oregon Power Company's Toketee Falls Hydro Station Puts Premium on Generator Dependability

AT BEST, there's no streamlined, sea-level route to the Toketee Falls Power Plant on the Umpqua River. That's apparent from the view at the left. And a man-sized layer of snow is normal there for the winter months. Obviously the station's three 16,667-kva generators had to be built with self-sufficiency to match this rugged country.

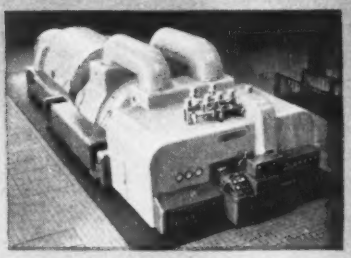
This assured dependability is the result of Allis-Chalmers half century of experience building hydraulic generators.

It is also the result of continuous engineering progress. For example, A-C has pioneered development of combined motor-generator and pump-turbine units for storage plant operation. One such unit now under construction will have a motor-generator rated 102,000 hp, making it the largest motor in the world.

Further assurance that each generator is built to give the most economical and satisfactory performance for the given installation stems from A-C's engineering background as the only builder of both generators and all types of hydraulic turbines.

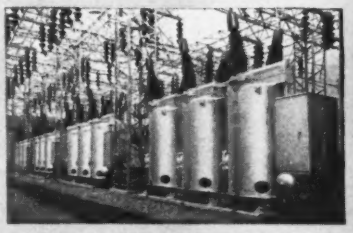
When you need power production or distribution equipment, you gain by calling your A-C representative early in the planning stages. Allis-Chalmers, Milwaukee 1, Wis.
A-3949

IT PAYS TO KEEP PACE WITH MACHINERY PROGRESS



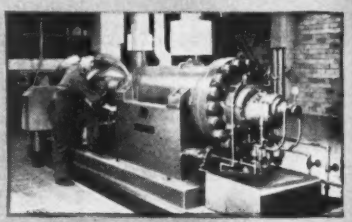
Installation-Proved *Supercharged* Cooling

Installed in 1951, this turbine generator unit has proved worth of *supercharged* conductor cooling. Resulting increased output per unit size cuts many plant costs.



10,000,000 Kva I.C. 3-Cycle Breakers

For maximum system stability, A-C offers up to 20-20-20 cycle repetitive reclosing. Full mechanically trip-free mechanism assures great reliability of operation.



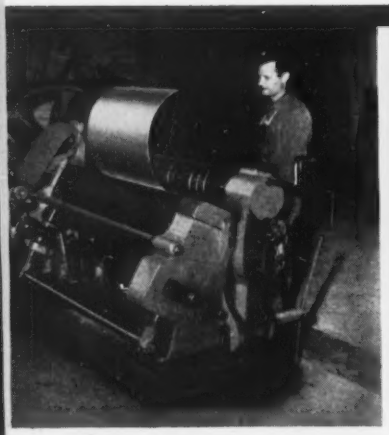
Modern Barrel-Type Boiler-Feed Pumps

Features include external glands, horizontally split inner case, metal-to-metal faces, only one internal gasket. Ratings range from 1200 to 3000 psig, 300 to 2500 gpm.

CHALMERS

A-C ALLIS CHALMERS

This is how *Kuhlman* makes distribution transformer tanks



1. All Kuhlman transformer tanks are made of heavy gauge copper bearing steel. Here a tank begins to take shape. The steel has been measured and cut and the necessary openings made. It is now being rolled into the shape of a cylinder.

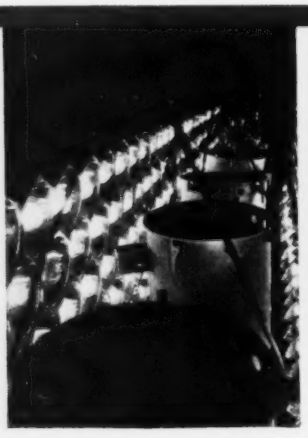
2. After the metal has been shaped, the edges are brought together and electrically welded to form an oil tight seam.

3. Next, the top end is "rolled down" to a smooth lip to form a suitable gasket seat.

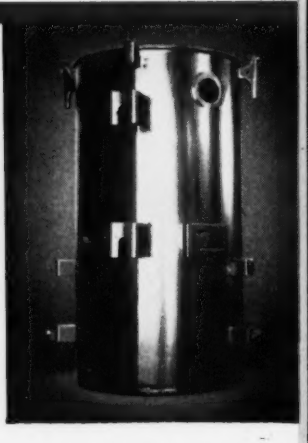
4. The next step is to attach the bottom. This is first "spotted" and then electrically welded all the way around to form an oil tight seal.

5. After the bottom end has been "rolled down" to form a smooth lip, the necessary accessories such as lifting ears, nameplate bracket, and mounting brackets are spot welded onto the tank as shown above.

6. Before they are painted the tanks are chemically cleaned and then shot blasted to assure a clean painting surface. Each tank receives a coat of rust inhibiting primer and two coats of corrosion resistant paint.



7. After each coat of paint the tanks are "baked" with infrared lights to insure a more durable finish.



8. And here is a completed tank, ready to receive its core and coil assembly and all necessary connections. Surfaces of Kuhlman tanks have successfully withstood 500 hours of salt spray and weatherometer tests.

Kuhlman transformers have been "on the line" for over half a century. Many of the earliest Kuhlman transformers are still in service—proof that Kuhlman builds rugged, highly efficient transformers. Specify Kuhlman. For more details about distribution transformers, ask for Bulletins CS-201 and CS-202.

Kuhlman **ELECTRIC COMPANY, BAY CITY, MICHIGAN**
CRYSTAL SPRINGS, MISSISSIPPI

KUHLMAN K E ELECTRIC

EXPORT REPRESENTATIVES: *International Standard Electric Corporation,*
15th Floor, 50 Church Street, New York 7, New York. Cable address: Microphone, New York.

With Skits and Films

Utility Packs 'Em In At County Fairs

To increase rural energy sales by promoting electrical appliances, Metropolitan Edison Co., Reading, Pa., put on an "Electric Show" at county fairs. The main feature of the show was a "down on the farm comedy" marionette skit concerning Farmer Joe and his new electrical appliances. Commercials were incorporated in the dialogue to show the advantages of electric living; particular emphasis was placed on electric water heating. In addition to the 20 minute skit, motion picture films were shown on electric cooking and lighting.

STANDING ROOM was at a premium. Many people stayed to view appliance displays after the show

MAIN ATTRACTION was the marionette show casting Reddy Kilowatt as "Farmer Joe's New Wired Hand". Skit lasted 20 minutes

DRAWING ATTENTION to the "Electric Show" was Reddy Kilowatt. Additional drawing card was a poster inviting public to rest

ADVANTAGES of electrical appliances were depicted by animated displays intermingled with appliances on both sides of the tent

THE ELLIOTT Outdoor Splashproof MOTOR

needs no roof—
no cored foundation—
no duct work—

Here is the logical answer to many drive problems which otherwise can be met only by added building construction or a totally-enclosed motor. Here too is new freedom in plant layout, permitting the placing of motor-driven equipment *where you want it,* whether or not it's under a roof.

The Elliott outdoor splashproof motor is ventilated through two water separation chambers which can also be provided with dust filters. The superior baffling design has proved entirely successful in every climate and weather you can think of—snow, sleet, heavy rain, wind-driven salt spray, dust, mist or fog.

Fully described in bulletin PB 7000-3. Ask your local Elliott representative, or write direct to Elliott Company, Ridgway, Pa.

ELLIOTT Company

RIDGWAY DIVISION

FOR MOTORS 1—200 HP:
CROCKER-WHEELER DIV., AMPERE, N. J.

R3-12

CAMPAIGN is launched at meeting of utility people and lamp makers addressed by sales manager Fred Kimball

SALESMAN Herb Roll is one of a dozen to receive drive prospectus from Roy K. Bear, commercial sales manager

PUTTING his material to work, Roll carries his lighting story to an executive of a large Wichita dry goods firm, as . . .

Utility Dolls Up Worn Store Lighting

A "Light Check-Er" inspection of lighting facilities for about a third of its 12,000 commercial customers has been launched by Kansas Gas & Electric Co. Aim is to restore lighting to its original shape, filling empty sockets, replacing burned out incandescent lamps, fluorescent tubes.

The activity was launched at a meeting of executives, sales personnel, and representatives of lamp manufacturers, after a preliminary survey indicated need for a rehabilitation program.

Participating in the 20-week drive are a dozen salesmen, competing for a total of $100 in prizes. Six prizes, ranging from $35 down to $5, are being offered, with quotas for each salesman serving as the basis for judging.

Salesmen have been provided Light Check-Er sales manuals, which review reasons for lighting maintenance. Local lighting contractors are pitching in by providing continuous maintenance service on a contractual basis. Group replacement programs are stressed.

Farm Motor Manual Provides Vo-ag Aid

Thousands of Midwest high school teachers and students of vocational agriculture found this semester that something new had been added to their classroom materials to assist them in better understanding the application of electric motors to farming operations.

The new aid is an instructors' manual developed cooperatively by the National Electrical Manufacturers Association and the Department of Vocational Agriculture at the University of Illinois.

Entitled "Electric Motors for Farm use," the unit provides authoritative information on such subjects as advantages of using electric motors for farm production chores, factors in selecting the right type and size of motor required, data on protecting and controlling motors, and installation practices.

Copies are available from M. Henderson, Associate Professor at Illinois University's College of Agriculture for 40 cents, or 35 cents for each copy in quantities of five or more.

Just an Old Pot Boiler . . .

. . . by comparison with the brand new, double oven, push-button model that replaced it in the kitchen of Mr. Adolph Strauch of Oakland, Calif., is this 47-year-old General Electric range—one of the first manufactured by the company. The 1906 model range has gone into honorable retirement for display at the Major Appliance Division's new Appliance Park in Louisville, Ky. Designated Model No. 1, the old range bears little resemblance to its modern counterpart, presented to Mrs. Strauch as a gift of the company. Fundamentally, it is a table with a high backboard on which are mounted switches—and the cord outlets which they control. For cooking, the 13 separate plug-in appliances it controls are plugged to the current-carrying cords.

FINANCIAL

Puget Directors to Vote . . .

. . . this week on merger with Washington Water Power. Favorable action appears probable, Frank McLaughlin reveals

Puget Sound Power & Light Co's directors are expected to vote this week on the proposed merger of the company into the Washington Water Power Co, Puget's Pres Frank McLaughlin told his stockholders at last week's annual meeting in Boston.

"A favorable action by this board appears probable because the merger terms fulfill a basic objective of Puget," said McLaughlin (See EW, March 23, p 127 for terms). It is expected that the Puget stockholders will be asked to vote upon the merger at a special meeting in June.

If the merger is completed, Frank McLaughlin will be retained by WWP as a "consultant" until he reaches the retirement age of 65 in nine years and thereafter will be placed on a pension.

Holders Want Tax-Free Deal . . . McLaughlin said the directors understand that there are large owners of both Puget and WWP common stocks and probably other persons who desire to have the company's property disposed of by a merger which would enable a tax-free exchange of common stocks. Other hurdles to be surmounted are approval of federal and state regulatory commissions involved, together with commitments as to financing by WWP.

The possibility exists that the merger may be delayed or even stopped by lawsuits brought by opposing Public Utility Districts in Washington State. Western Washington now is served about 70% by public power.

The closing date of the five-district PUD purchase agreement has been extended from Feb. 27 to July 31, 1953 with the understanding that merger negotiations between Puget and WWP will continue.

Should the merger be consummated before July 31 another possibility might reside in acquisition by the PUD's of WWP property through condemnation proceedings, but these involve legal uncertainties as to outcome.

Condemnation Proceedings . . . The PUD's have announced they will activate their pending individual condemnation suits against Puget's generating and distributing facilities. Kinsey Robinson, president of WWP, declares he has "no fear at all" these condemnation suits will succeed, principally because he believes the PUD's would be unable to finance the purchase of the private properties even if they were able to get condemnation awards in the courts.

Robinson hasn't convinced all observers that the PUDs' day is over. They point out that the recent state legislature did not pass a single piece of the many PUD-crippling proposals made on behalf of private power. They point out that western Washington is unlikely to greet with open arms a power company whose headquarters are in eastern Washington.

Even Chelan County, in the middle of the state, has been grumbling about the possibility of Puget's nearby Rock Island Dam being controlled by WWP. The desire for "home rule" will work for the PUD's and against WWP in the battle for public opinion.

These observers also point out that, although the PUD's might have had some trouble in financing the proposed $107-million package purchase of Puget's properties, financing the construction of generating plants and desirable distribution properties would be less difficult, unless severance damages should run too high.

Twelve Suits Pending . . . Twelve condemnation actions are pending against Puget properties. The Chelan County PUD seeks the 80,000-kw Rock Island plant while the Skagit PUD is after the 40,000-kw Baker River plant as well as the distribution system in the county. The 25,000-kw Electron plant is sought by Thurston County and the City of Tacoma, the 60,000-kw White River plant by the Kitsap PUD and Tacoma and the 22,000-kw Snoqualmie Falls plant by the City of Renton. Condemnation of parts of the distribution system is sought by the cities of Enumclaw, Kent, Renton, Sedro-Woolley, Sumner, and Tacoma and the Kitsap and Thurston PUD's.

WWP will have a big selling job to do in convincing these cities they should become a part of a private power empire controlled from Spokane. Even the Kitsap PUD, foe of the overall PUD purchase of Puget, had intended to acquire Puget properties within the county.

WWP's big selling point is that it will have been able to acquire Puget, including the Whatcom County distribution system, for $91 million, as compared to the $94 million price the PUD's were prepared to pay, without the Whatcom properties. In addition, the PUD's would have required another $13 million to provide working capital, pay financing costs, etc.

Municipalities Cut Rates

Two municipal plants have recently cut their rates. The South Hadley Municipal Light Board in Massachusetts has approved a new general service schedule applicable for domestic, commercial and industrial customers, effective April 1, which will save consumers $15,000 a year. The other plant is Kings Mountain, N. C. where residential rates have been cut 10% to equalize the reduction of 20% in commercial rates made following complaints of schedules adopted last July. So many complaints were received that the board cut commercial rates 20% and residential rates only 10%. The new 10% cut brings both classifications in line.

FINANCIAL BRIEFS

Commonwealth Edison Co and Public Service Co of Northern Illinois stockholders have approved the merger of Northern Illinois company into Commonwealth Edison. The company stated the merger is a final step in a program of corporate simplification and integration which Commonwealth has been following for fifteen years.

Quebec Power Co will pay May 25 a common dividend of 30¢ a share as compared with 25¢ a share in previous quarters . . . **Michigan Gas & Electric Co** will pay a common dividend of 45¢ on March 31 to stock of record March 24. It is the announced intention of the company to pay three quarterly dividends of 45¢ a share in

cash in 1953 and, subject to the approval of the Michigan Public Service Commission, a 3% dividend payable in shares of common stock in the fourth quarter of the year.

Stockholders' Meetings — Detroit Edison Co stockholders will meet April 14 to determine whether to increase authorized capital stock of company from 15 million shares to 20 million shares and to authorize convertible debentures up to $55 million which can be converted into common stock . . . Toledo Edison Co stockholders will be asked, at their meeting on April 21, to increase the authorized common shares from 5 million to 7.5 million and change the limitation on unsecured debt from 10 to 20% of secured debt, plus capital and surplus. "The management has no present plans to issue new common stock," Pres Charles E. Ide revealed, "but we think it advisable to increase the authorized number of shares so that they may be issued when this form of financing would be to the best interests of the company."

Appalachian Electric Power Co has received West Virginia Public Service Commission approval to purchase the electrical system of Eunice from the Chesapeake & Ohio Railway Co for $5,004.

Common stock subscription warrants are attached to the 30,000 shares of Public Service Co of New Mexico cumulative $100 par Series A, 5% preferred stock (EW, March 23, p 128). This stock is being offered at $100 a share through an underwriting group headed by Allen & Co. Each preferred share carries a nondetachable (unless exercised) warrant to buy five shares of common stock at $11.375 a share on or before April 1, 1955 and at $12.375 a share thereafter through April 1, 1957.

Stockholder Subscriptions — South Carolina Electric & Gas Co stockholders subscribed for 320,159 common shares of 358,045 shares offered on a 1-for-7 basis at $12. Stockholders asked for 113,174 shares under the over-subscription privilege which necessitated an allotment.

Virginia Electric & Power Co has placed privately through Stone & Webster Securities Corp $20 million 3½% sinking fund debentures due 1978.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1953									
Mar. 19	**3.13**	**3.21**	**3.30**	**4.13**	**4.36**	**4.62**	**4.94**	**5.21**	**5.52**
Mar. 12	3.11	3.18	3.26	4.15	4.32	4.61	4.93	5.25	5.57
END OF QTR.									
4th 1952	2.99	3.03	3.14	4.06	4.22	4.59	4.98	5.33	5.62
3rd 1952	2.99	3.03	3.16	4.10	4.26	4.61	5.18	5.59	5.96
2nd 1952	2.95	3.00	3.09	4.05	4.31	4.60	5.38	5.85	6.42
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months Ended		Net Income 1953	Net Income 1952	Earnings Per Common Share 1953	Earnings Per Common Share 1952
Carolina Power & Light	12	Feb.	$7,199,377	$6,339,112	$....	$....
Central Illinois Light	12	Feb.	3,140,094	3,078,439	2.93	2.86
Detroit Edison	12	Feb.	18,388,979	15,911,762	1.79(a)	1.69(a)
New York State Electric & Gas	12	Feb.	7,716,125	6,529,795	2.47(b)	2.28(b)
Ohio Edison, consolidated	12	Feb.	16,728,984	14,097,398	2.77(c)	2.65(c)
Southern Indiana Gas & Electric	12	Feb.	1,940,694	1,720,921	2.23	1.91
			1952	**1951**	**1952**	**1951**
California Oregon Power	12	Dec.	$2,617,258	$2,338,100	$1.69(f)	$1.83(f)
Cleveland Electric Illuminating	12	Dec.	12,669,557	11,405,995	4.13(g)	3.68(g)
Commonwealth Edison, consolidated	12	Dec.	33,463,970	26,754,689	2.25(h)	1.93(h)
Consumers Power	12	Dec.	19,750,356	19,515,063	2.65(e)	2.61(e)
Oklahoma Gas & Electric	12	Dec.	5,706,889	4,960,403	2.00	1.69
Pennsylvania Electric	12	Dec.	8,177,529	6,596,927	....	....
Pennsylvania Power	12	Dec.	2,203,648	1,794,345	....	....
Pennsylvania Power & Light	12	Dec.	13,476,867	12,616,791	2.45	2.30
Potomac Electric Power	12	Dec.	6,165,942	5,191,626	1.35	1.12
Public Service Co. of Colorado	12	Dec.	7,467,154	6,917,607	2.29	2.10
Toledo Edison	12	Dec.	5,322,668	4,538,096	1.06	0.91

Notes—Figures shown for the last 11 companies have been audited.
(a) Based on 10,252,333 shares in 1953 and 9,401,478 shares in 1952; (b) Based on 2,696,950 shares in 1953 and 2,396,950 shares in 1952; (c) Based on 5,278,306 shares in 1953 and 4,798,460 shares in 1952; (e) Based on shares outstanding at end of year; (f) Based on 1,300,000 shares in 1952 and 1,050,000 shares in 1951; (g) Based on 2,789,476 shares outstanding before sale of 552,832 shares on Dec. 19, 1952, and (h) Based on 13,950,941 shares in 1952 and 13,732,000 in 1951.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF MARCH 19-25			
Bonds			
Georgia Power—1st mtg 3¾% due 1983	$16,000	$100.90	3.70%
Dallas Power & Light—1st mtg 3½% due 1983	9,000	101.871	3.40
Preferred Stock			
Georgia Power—100,000 sh $4.92 no par	$10,250	$102.50	4.80%
Common Stock			
Southern Indiana Gas & Electric—114,167 sh (being offered to commonholders on 1-for-6 basis, record March 25 to expire April 10)	$2,797	$24.50	6.12%
SCHEDULE FOR MARCH—APRIL			**Bid Date**
Bonds			
Public Service of Oklahoma—1st mtg due 1983	$6,000	.....	March 31
California Electric Power—1st mtg due 1983	8,000	.....	April 6
Brockton Edison—1st mtg due 1983	4,100	.....	April 6
Florida Power & Light—1st mtg due 1983	15,000	.....	April 7
Kentucky Utilities—1st mtg due 1983	10,000	.....	April 7
Texas Electric Service—1st mtg due 1983	7,000	.....	April 13
New Orleans Public Service—1st mtg due 1983	6,000	.....	April 14
Jersey Central Power & Light—1st mtg due 1983	8,500	.....	April 14
Detroit Edison—1st mtg due 1988	40,000	.....	April 28
Preferred Stock			
Texas Electric Service—100,000 sh no par	$.....	.....	April 13
Louisiana Power & Light—60,000 sh $100 par	6,000	.....	April 21
Common Stock			
Kentucky Utilities—208,057 sh (to be offered commonholders on 1-for-10 basis, record March 20 to expire April 13)	$.....	.....	March 27**
California Electric Power—163,249 sh	.....	.....	March 31
Central & South West Corp—606,084 sh (to be offered commonholders on 1-for-14 basis, record April 1 to expire April 20)	.....	.....	.....
Southern Co—1,004,869 sh (to be offered to commonholders on 1-for-17 basis, record April 16 to expire May 7)	.....	.....	.....
Middle South Utilities—475,000 sh (to be offered commonholders on 1-for-14 basis, record April 8 to expire April 28, with an oversubscription privilege)	.....	.....	.....
Oklahoma Gas & Electric—241,195 sh (to be offered commonholders on 1-for-10 basis, record about April 16 to expire May 4, with an oversubscription privilege)	.....	.....	.....

Notes—** Rights become effective.

No Metal Price Boosts Seen . . .

. . . as a result of government stockpiling. Munitions Board says 78% of stockpile objectives are on hand, or under contract

Industry needn't fear that stepped-up government stockpiling will boost metal prices at this time. That's the feeling of most Washington observers.

The problem came to a head recently when the General Services Administration unexpectedly went into the zinc market. The agency had supposedly reached its zinc stockpile goal last year.

Silent on Zinc Purchases . . . GSA has not revealed the quantity and price of the zinc bought recently. But the feeling is that less than 25,000 tons were bought at about the current market price, 11¢ a lb. This is considered insufficient to have much effect on prices.

It's doubtful that GSA has any intention of buying lead. The stockpile goal has long since been achieved. The situation is different in copper and aluminum. The stockpilers are far from their goals, and there will be substantial buying this year.

Copper doesn't really need stockpile buying as a market prop. Since price controls were dropped last month, domestic prices have risen from the 24½¢ a lb ceiling to as much as 34¢. It's not known when stockpile buying will begin. If purchases are held off till mid-year, the effect on prices will be slight.

Covered by Contracts . . . Aluminum stockpiling is generally covered by contracts already signed as part of government expansion incentive deals. Actual shipments to the stockpiles are not expected to affect market prices. Producers are keeping prices stable anyway to promote substitution for more expensive copper.

At the start of the year, 78% of total stockpile objectives were already on hand or under contract for future delivery, the Munitions Board has announced. Inventories were valued at more than $4 billion, and an additional $1.8 billion worth of materials was scheduled for delivery. The $5.8 billion total compares with a value of $7.4 billion for total stockpile objectives at prevailing prices.

Thirty seven of the 74 materials on the stockpile list—including nonmetallics—are either fully in inventory or have been contracted for. Only 25 materials are less than 80% on hand or under contract for delivery.

Refined Copper Stocks Increase in February

Stocks of refined copper held in the United States by members of the Copper Institute, Inc, at the end of February totaled 60,944 tons, an increase of 1,108 tons over the 59,836 tons held on Jan. 31.

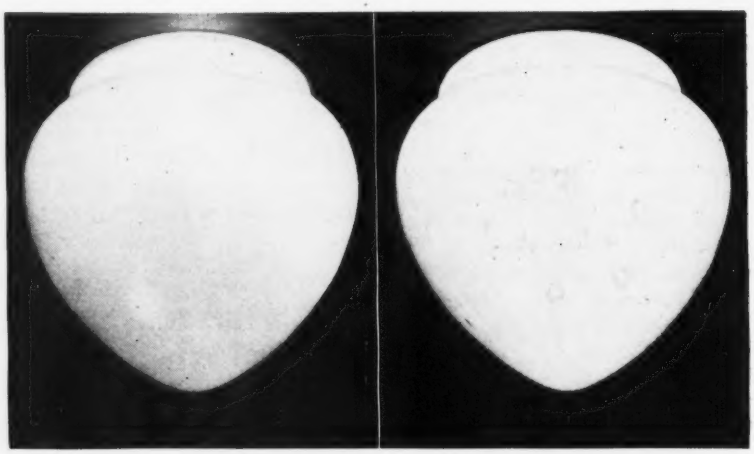
During February deliveries to domestic fabricators dropped to 117,204 tons from deliveries of 125,133 in January. Refined production also decreased to 101,538 tons from 108,010.

Outside the United States refined stocks amounted to 122,223 tons on Feb. 28, an increase of 1,594 tons on Jan. 31. February deliveries declined to 65,195 tons from 81,417 in January and refined production was 88,539 tons compared with 93,667.

MANUFACTURING BRIEFS

Westinghouse Electric Corp has manufactured for Detroit Edison Co a 190,000-kva transformer, reported to be the largest in kva capacity ever built. The transformer is one of four such units for the utility's St. Clair station. The units will step up generator voltage from 15 to 138 kv.

A new plant for expanded production of Bakelite fluorothene resins is under construction at South Charleston, W.

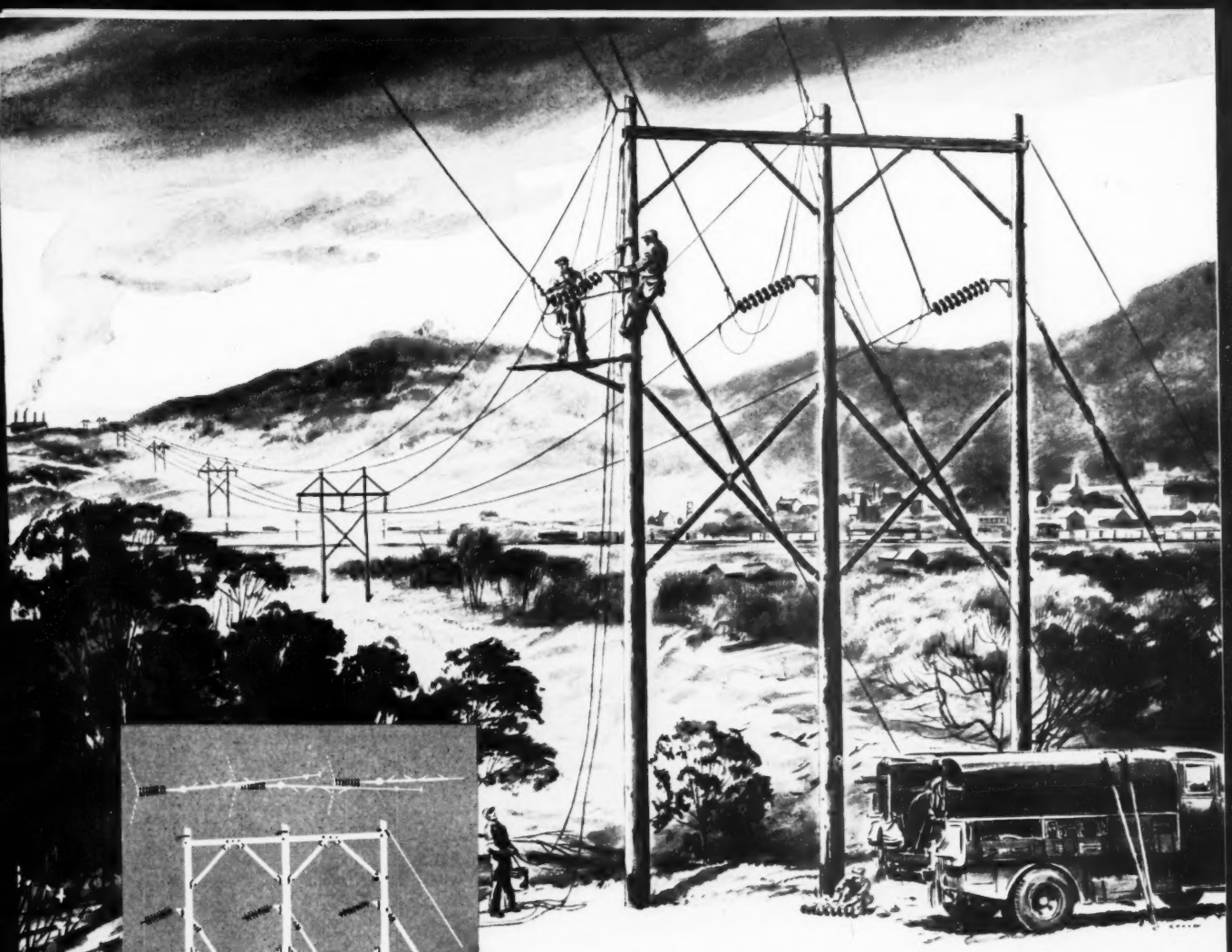


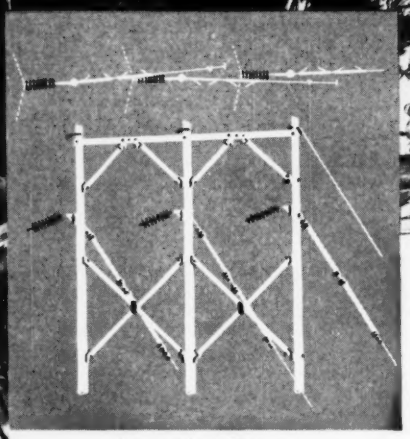
Even Bullets Don't Shatter This Globe

The dream of street lighting experts for a non-shatterable street lamp globe is nearer realization. This became apparent with the recent development of a one-piece plastic, shatter-proof globe by the Plastic Division of Colt's Manufacturing Co, Hartford, Conn. This company is better known for its world famous line of revolvers and automatic pistols.

Colt's new one-piece globe is formed of a modified acrylic resin. Present indications are that it will stand up satisfactorily under all operating conditions. The globe shown above at left is how the unit appears when unmolested. The globe, intact, at the right is the unit which has been drilled with bullets. The globes, which can be cleaned by usual methods with detergents, weigh 2 lb 3 oz as compared with 6 lb 1 oz for glass.

Field tests revealed the globe is capable of being used in installations having a light output of up to and including 6,000 lumens with the same light transmission factor as the light alabaster glass globe.





Type No. 708 —
Medium Angle Structure*

Quantity	Description
2	Crossarm
3	Stud bolt ⅞" w/2 washer nuts and locknuts
2	Filler block
6	Stud bolt ¾" w/2 washer nuts and locknuts
4	Knee brace
3	Swinging angle bracket 2/plate and bolts
7	Machine bolt ⅞" w/sq. nut and locknuts
4	Flat washer 4" sq. x ¼", 15/16" hole
2	Curved washer 4" sq. x ¼", 15/16" hole
2 sets	Cross brace w/fittings, clamp, ⅞" pole bolts and curved washers
3	Pole band
3 pr.	Connecting link
1	Guy roller
1	Machine bolt ¾" x 2½"
6	Wood strain insulator
2	Suspension clamp for static wire
As req'd	Suspension insulators and fittings
As req'd	Guying material
3	Link

**This print was reproduced from the Graybar Bulletin GB-5076A on High Voltage Transmission Line Materials. This 92-page book covers, in condensed form, Graybar materials for line construction. Write us, if you do not already have your free copy.*

How 109 Graybar Offices and Warehouses help Standard Construction Practice

The ever-growing need for electric power demands continual construction of new transmission lines . . . many of them through rugged virgin country.

Ingenuity and skill of experienced transmission engineers speeds vital construction work ahead. And acting as local liason between them and hundreds of manufacturers are 109 strategically-located Graybar offices and warehouses.

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IN OVER 100 PRINCIPAL CITIES

Va. Bakelite Co, a division of Union Carbide & Carbon Corp, will handle the sales of the resins, a plastic material used in electric wire insulation for high-temperature operation. The new plant, to be completed by the middle of this year, will be operated by Carbide & Carbon Chemicals Co, another division of Union C&C.

SALES ASSIGNMENTS

COMPANY STAFFS

Allis-Chalmers Manufacturing Co's General Machinery Division has assigned as sales representatives John A. Brown, Jr. and Donald L. Fitzsimmons to the Knoxville (Tenn.) and Louisville (Ky.) district offices, respectively.

Libbey-Owens-Ford Glass Co's Fiber Glass Division has named Thomas L. Carver sales representative in New York. Before joining the division, Carver was associated with General Motors Corp.

MEETINGS CALENDAR

Edison Electric Institute
19th Annual Sales Conference, Edgewater Beach Hotel, Chicago, March 30-April 2; Accident Prevention Committee, Edgewater Beach Hotel, Chicago, May 4-5; Transmission-Distribution Committee, Edgewater Beach Hotel, Chicago, May 5-6; Electrical Equipment Committee, Sir Walter Hotel, Raleigh, N. C., May 11-12; Meter-Service Committee, Wentworth-by-the-Sea, Portsmouth, N. H., May 25-27; 21st Annual Convention, Atlantic City, N. J., June 1-4; Hydraulic Power Committee, Portland, Ore., June 15-16.

***Illuminating Engineering Society**
Pacific Northwest Regional Conference, Benson Hotel, Portland, Ore., April 2-3; South Pacific Coast Regional Conference, Los Angeles, Calif., April 9-10; Southwestern Regional Meeting, Hotel Baker, Dallas, Tex., April 12-14; East Central Regional Conference, Lord Baltimore Hotel, Baltimore, Md., May 14-15; Southern Regional Conference, Sedgefield Inn, Greensboro, N. C., May 18-19; Great Lakes Regional Conference, Syracuse Hotel, Syracuse, N. Y., May 25-26; National Technical Conference, Hotel Commodore, New York, Sept. 13-17.

Southeastern Metermen's Association
28th Annual Short Course Conference, University of Florida, Gainesville, Fla., April 6-10.

Pacific Coast Electrical Association
Administrative Services Section Conference, Phoenix, Ariz., April 8-9; Annual Convention, Hoberg's, Lake County, Calif., May 13-15.

Missouri Valley Electric Association
Engineering Conference, President Hotel, Kansas City, Mo., April 8-10.

Northwest Electric Light & Power Association
Engineering-Operation Section, Multnomah Hotel, Portland, Ore., April 8-10; Business Development Section, Davenport Hotel, Spokane, Wash., May 4-6.

Northwest Public Power Association
Engineering-Operation Section, Osbourn Hotel, Eugene, Ore., April 16-17; Annual Convention, Ridpath Hotel, Spokane, Wash., May 6-8; Accounting Section, Monticello Hotel, Longview, Wash., Sept. 17-18.

Southeastern Electric Exchange
Engineering-Operation Section, Edgewater Gulf Hotel, Edgewater Park, Miss., April 16-17; Industrial Power Sales Conference, Fort Sumter Hotel, Charleston, S. C., May 21-22.

Maryland Utilities Association
Annual Business Conference, Lord Baltimore Hotel, Baltimore, April 17; Fall Conference, Cavalier Hotel, Virginia Beach, Va., Sept. 18-19.

Electric-Gas Utility Accountants
National Conference, Sherman Hotel, Chicago, April 20-22.

North Central Electric Association
Accident Prevention Committee, Dyckman Hotel, Minneapolis, April 21; Distribution-Equipment Engineering Meeting, Dyckman Hotel, Minneapolis, April 22; South Dakota All-Electrical Industry Meeting, Ward Hotel, Aberdeen, S. D., April 24-25.

American Institute of Electrical Engineers
Southern District Meeting, Hotel Seelbach, Louisville, Ky., April 22-24; Northeastern District Meeting, Sheraton Plaza Hotel, Boston, April 29-May 1; Conference on Electric Heating sponsored by Committee on Electric Heating and Michigan Section, AIEE, Detroit-Leland Hotel, Detroit, May 26-27; Summer General Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 15-19; Pacific General Meeting, Hotel Vancouver, Vancouver, B. C., Sept. 1-4; Middle-Eastern District Meeting, Daniel Boone Hotel, Charleston, W. Va., Sept. 29-Oct. 1; Fall General Meeting, Muehlebach Hotel, Kansas City, Mo., Nov. 2-6.

Pennsylvania Electric Association
Spring Meeting, Meter Committee, Hotel Alexander, Hagerstown, Md., April 23-24; Spring Meeting, Communications Committee, Hotel Roosevelt, Pittsburgh, April 30-May 1; Spring Meeting, Relay Committee, Valley Forge Hotel, Norristown, Pa., May 7-8; Industrial Sales Conference, Galen Hall, Wernersville, Pa., May 7-8; Electrical Equipment Committee, Benjamin Franklin Hotel, Philadelphia, May 12-13; Hydraulic Power Committee, Yorktowne Hotel, York, Pa., May 14-15; Transmission-Distribution Committee, Irem Temple Country Club, Dallas, Pa., May 14-15; Prime Movers Committee, Beachcombers Resort Hotel, Erie, Pa., May 18-19; Systems Operation Committee, Skytop Lodge, Skytop, Pa., May 21-22.

Rocky Mountain Electrical League
Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo., April 26-28.

American Society of Mechanical Engineers
Spring Meeting, Deshler-Wallick Hotel, Columbus, Ohio, April 28-30; Semi-Annual Meeting, Statler Hotel, Los Angeles, June 28-July 2; Fall Meeting, Sheraton Hotel, Rochester, N. Y., Oct. 5-7; Annual Meeting, Statler Hotel, New York, Nov. 29-Dec. 4.

Electric Lines Club of New England
Spring Meeting, University Club, Boston, Mass., May 6.

***Great Lakes Power Club**
Spring Meeting, Indianapolis Athletic Club, Indianapolis, Ind., May 7-8.

Public Utilities Advertising Association
National Convention, Chase Hotel, St. Louis, May 7-8.

Chicago Electrical Industry Show
Sponsored by Electric Association and Electrical Maintenance Engineers of Chicago, Conrad Hilton Hotel, Chicago, May 11-14.

***American Public Power Association**
Tenth Annual Convention, Sheraton Plaza Hotel, Boston, May 12-14.

***Georgia Institute of Technology**
Conference on Protective Relaying, Atlanta, Ga., May 14-15.

Third International Congress on Electro-Thermics
Paris, France, May 18-23.

Electrical Manufacturers' Representatives Association of Michigan, Inc
1953 Electrical Exhibition, State Fair Grounds, Exhibition Bldg., Detroit, May 19-22.

Interstate Power Club
Joint Meeting with Power Engineer's Association, Lawn Club, New Haven, Conn., May 22; Hotel Martinique, New York, Oct. 5; Hotel Martinique, New York, Dec. 7.

National Association of Purchasing Agents
Annual Meeting, Statler Hotel, Los Angeles, May 24-27.

National Association of Electrical Distributors
45th Annual Convention, Conrad Hilton Hotel, Chicago, May 24-29; Spring Meeting, Pacific Zone, Huntington Hotel, Pasadena, Calif., June 8-10.

California Municipal Utilities Association
Annual Conference, Clift Hotel, San Francisco, June 9-12.

American Welding Society
Exposition held in conjunction with National Spring Technical Meeting, Shamrock Hotel, Houston, Tex., June 16-19.

Canadian Electrical Association
Annual Convention, Manoir Richelieu, Murray Bay, Que., June 25-27.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 29-July 3.

International Association of Electrical Leagues
18th Conference, Fairmount Hotel, San Francisco, Aug. 5-8.

Instrument Society of America
8th National Instrument Exhibit, Sherman Hotel, Chicago, Sept. 21-25.

National Electrical Industries Show
Sponsored by Eastern Electrical Wholesalers' Association, 69th Regiment Armory, New York, Sept. 29-Oct. 2.

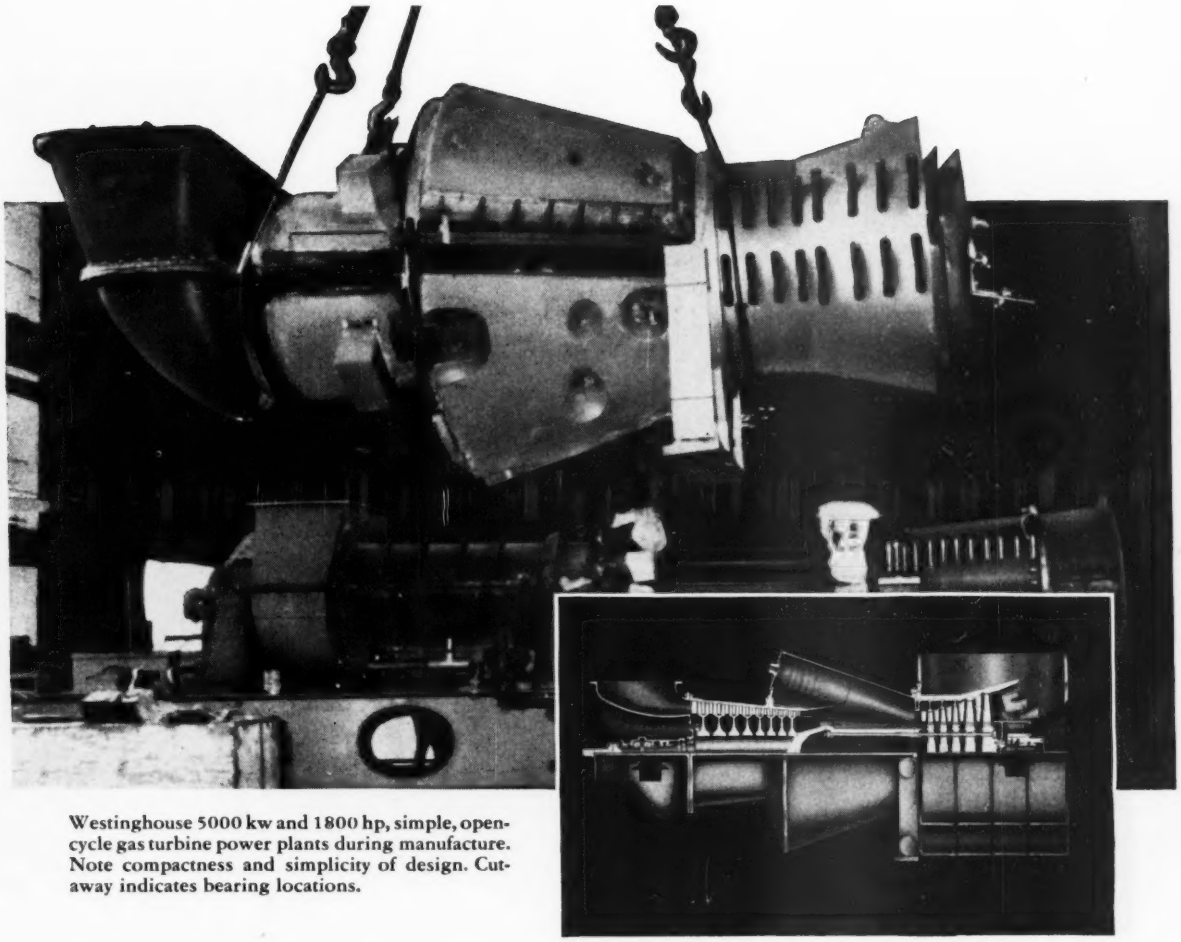
National Electrical Manufacturers Association
Annual Meeting, Haddon Hall, Atlantic City, N. J., Nov. 9-12.

*** Addition this week.**

MANUFACTURERS' EARNINGS

Company	Period Months Ended		Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Allis-Chalmers Mfg	12	Dec.	$24,457,855	$22,416,813	$7.98(a)	$8.19(a)
Aluminum Co of America	12	Dec.	43,527,142	39,301,308	8.38	7.53
Blaw-Knox	12	Dec.	4,189,204	3,602,559	2.97	2.55
Combustion Engineering-Superheater	12	Dec.	5,935,009	6,025,260	6.15	6.24
Electric Storage Battery	12	Dec.	2,249,376	3,684,978	2.48	4.06
Formica	12	Dec.	1,228,923	1,607,835	3.75	4.90
Holophane	6	Dec.	322,711	351,777	.85	.93(b)
International Nickel (e)	12	Dec.	58,891,282	62,875,571	3.90	4.17
I-T-E Circuit Breaker	12	Dec.	2,620,429	1,921,565	8.44(c)	7.12(c)
Walter Kidde	12	Dec.	1,120,381	930,267	5.36	4.45
Landers, Frary & Clark	12	Dec.	1,195,874	1,081,001	2.85	2.57
National Vulcanized Fibre	12	Dec.	590,317	1,455,156	1.11	2.73
Orangeburg Mfg	12	Dec.	510,756	515,297	3.22(a)	3.41(a)
H. K. Porter	12	Dec.	1,522,664	1,732,558	5.62	6.39
Reynolds Metals	12	Dec.	14,731,071	15,837,846	8.71	9.33
United States Steel (e)	12	Dec.	143,687,746	184,359,787	4.54	6.10

Notes—(a) On shares outstanding at close of period; (b) Based on shares now outstanding; (c) On shares outstanding at close of respective periods; (e) These figures have been audited.



Westinghouse 5000 kw and 1800 hp, simple, open-cycle gas turbine power plants during manufacture. Note compactness and simplicity of design. Cut-away indicates bearing locations.

Westinghouse 2-bearing gas turbine design means faster starting . . . less maintenance

The compact, two-bearing design of the Westinghouse 5000 kw Combustion Gas Turbine eliminates all hot, high pressure bearing seals. The two bearings are part of the main frame which means greater rigidity . . . less vibration —no misalignment difficulties—faster starting characteristics.

Combustors are arranged at an angle radially around the axial flow air compressor discharge and turbine inlet. Minimum bearing length and maximum combustor accessibility are realized, resulting in simplified and reduced maintenance.

The Westinghouse 5000 kw, simple, open-cycle combustion gas turbine power plant for electric power operation is ideally suited for (1) base load operation where fuel is inexpensive (2) where exhaust gas can be used for feed-water heating, steam generation or process work (3) peak load, stand-by and end-of-line electric plants (4) where water is scarce or expensive and (5) where mobile or semiportable plants are needed.

Call your local Westinghouse representative to help you utilize this modern efficient power source in your particular application. Or if you prefer, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-50546

YOU CAN BE SURE...IF IT'S Westinghouse

Rugged?

This Westinghouse transformer survived a fall . . . undamaged!

Yes—it does happen. A good example is the case of a large 22,500/30,000-kva power transformer which accidentally slipped, during unloading, from a freight car and crashed to the ground. Although the tank was extensively battered, inspection indicated there was absolutely no damage to the vital parts. After field test, it was installed and put into service. It's been giving a southern utility trouble-free service ever since.

Accidents of this type prove the superiority of Westinghouse Form-Fit power transformer design which assures safe delivery of built-in quality. Shell-form construction with Form-Fit tank results in superior mechanical ruggedness. One reason is that the core surrounds, supports and protects the coils, giving them added strength . . . both mechanically and electrically.

There are other advantages to Westinghouse Form-Fit design, too, which result in long term advantages to you. On the average, Form-Fit transformers are 20% lighter and utilize 15% less foundation area . . . making available substantial savings in installation time and expense.

It's a proved fact that Westinghouse transformers offer greater dependability at reduced costs under all operating conditions. Call your Westinghouse representative. He'll be glad to discuss the application of these transformers to your specific problems. Also available at your request is bulletin B-4142A. Write for it at Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

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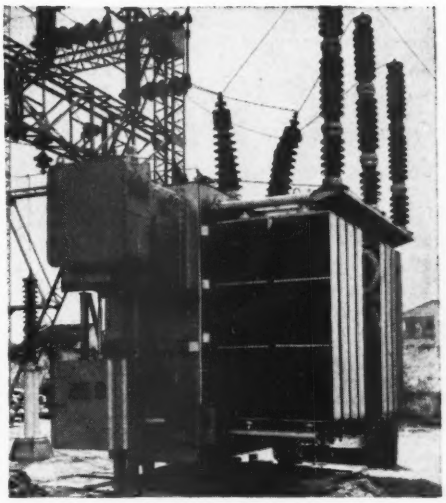
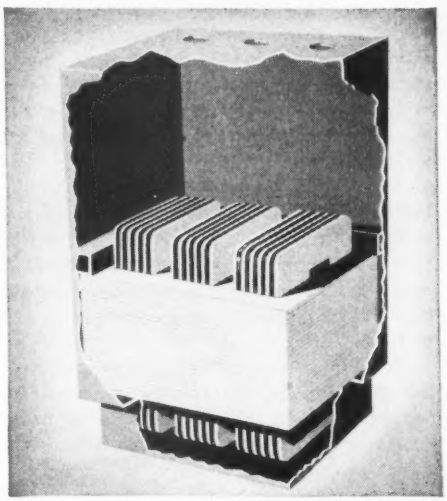


In service. A side view shows the 22,500/30,000-kva transformer in service after surviving a fall during unloading.

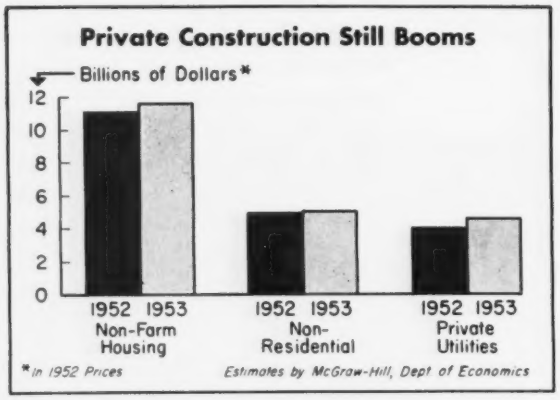


Reason for ruggedness. This core-coil design is the big reason why this Westinghouse Form-Fit transformer reached the site intact. Core surrounds, supports and protects the coils.

YOU CAN BE **SURE**...IF IT'S

Westinghouse

ELECTRICAL BUSINESS OUTLOOK



Construction Still Rising

Only industrial building is tapering off as the defense expansion program nears completion

Construction is still going strong, helping keep the U.S. economy humming. Total value of new construction in 1953 is likely to set a record. It may reach $34 billion—5% more than in 1952. Physical volume of building—price changes taken out—may set a record, too. Public construction will lead the rise in building activity—as it has since 1950. Defense projects, plus increasing work on the big backlog of highway and other public construction needs, are expected to push up public work 8-9%, to more than $11 billion.

Private Construction Increasing . . . But private construction—two-thirds of all construction—is holding up its end. It's been held back by shortages and controls for the past two years. Dollar volume of building went up in 1951 and 1952—but only because of higher prices. Actual physical volume of private work declined each year. Now—with shortages largely ended—private work shows signs of new strength. Private construction may total about $22.8 billion this year—4% or so over the figure for 1952. Housing, commercial building, and utility construction are expected to lead the gains.

Housing is still going strong, despite some warning signs on the horizon (EBO, March 16). Experts expect another million or more non-farm housing starts this year. In dollar volume, total private non-farm residential work may reach $11.6 billion or more, compared to $11.1 billion in 1952.

Industrial building is tapering off as defense expansion nears completion. But it will hold up better than many experts thought; volume may reach $1.9 billion or more, compared to $2.3 billion in 1952.

Commercial construction—which has been held back by materials controls and mortgage regulations—is beginning to come back fast. It amounted to $1.1 billion in 1952, should reach $1.4-1.5 billion in 1953. That covers warehouses, office and loft buildings, stores, restaurants, and garages. Other non-residential building may move up a little, to perhaps $1.6 billion. The upsurge in commercial building may push private non-residential building a bit higher than in 1952—despite the substantial drop in industrial work. The nation has a large backlog of accumulated needs for new stores and office buildings.

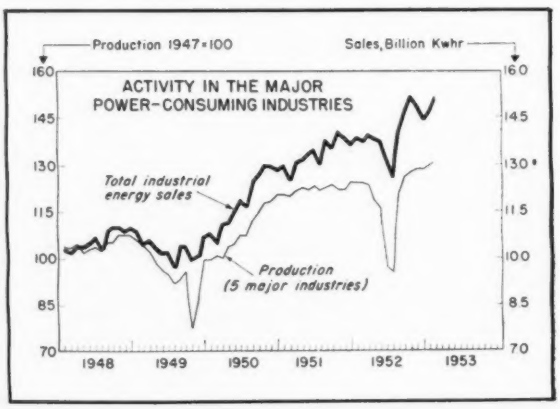
Utilities are making a larger contribution to the construction total this year. And it's not just the electric utilities that are increasing construction work; gas utilities also plan much larger expenditures in 1953. Pipeline construction was held back in 1952 by shortages of materials. Total utility construction may increase by as much as 14%, to $4.5 billion. Other private construction may be down a little. Farm work is expected to be down. But the drop here won't be large enough to have much effect on the private total.

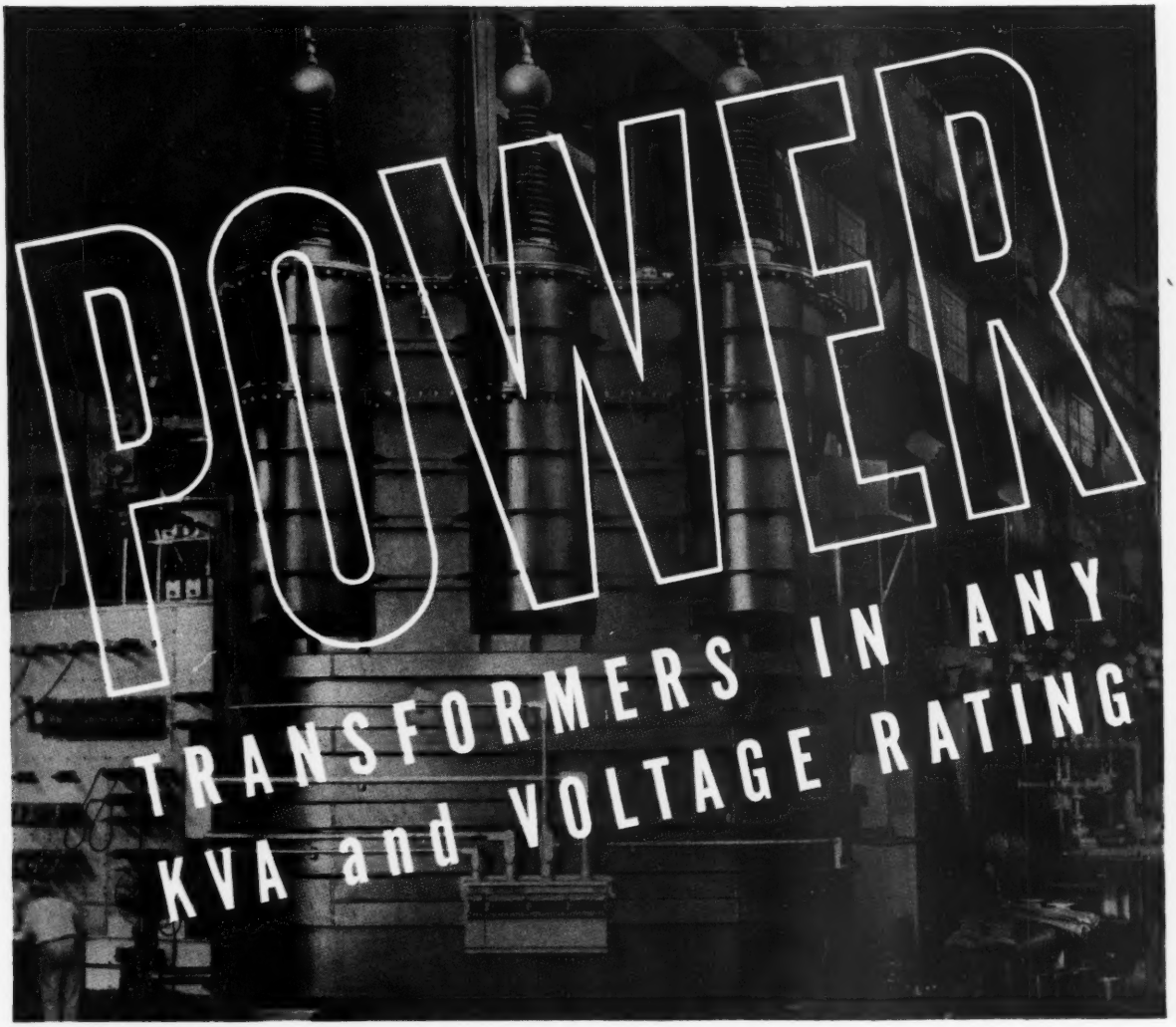
Rising construction activity is good news for utilities. It means more customers for electrical energy. But it's good news in another way. Construction promises to be one of the stronger bulwarks against a serious decline in overall economic activity this year.

Since 1950, the economy has been kept busy largely by three forces—defense spending, business spending for new plants and equipment, and construction. With defense spending promising to level off during 1953, it becomes doubly important that spending in the other two categories stay high if the economy is to continue operating on a high level.

Construction Costs to Rise 3% . . . The postwar inflation in building costs will continue in 1953—but it's likely to be a much smaller burden than in recent years. Costs in 1953 are expected to average somewhere around 3% higher than the average for 1952. There's even a chance that building costs will level off, and even start down, toward the end of this year.

Wage increases will be the main factor in raising costs this year. Of the important materials, only copper is likely to cost much more than in 1952. Other materials are expected to vary little—some up a bit, some down. And even copper may be back around its former ceiling price before the end of the year.





MOLONEY has the capacity to manufacture power transformers of any Kva and voltage rating. When utilities and industrials use Moloney equipment, they obtain the benefits of all the experience and knowhow of over 57 years of engineering, designing and fabricating transformers. This experience produces a better transformer, which, when installed, will give better performance, have greater reliability and require less maintenance. For further information contact your nearest Moloney representative.

ME 53-9

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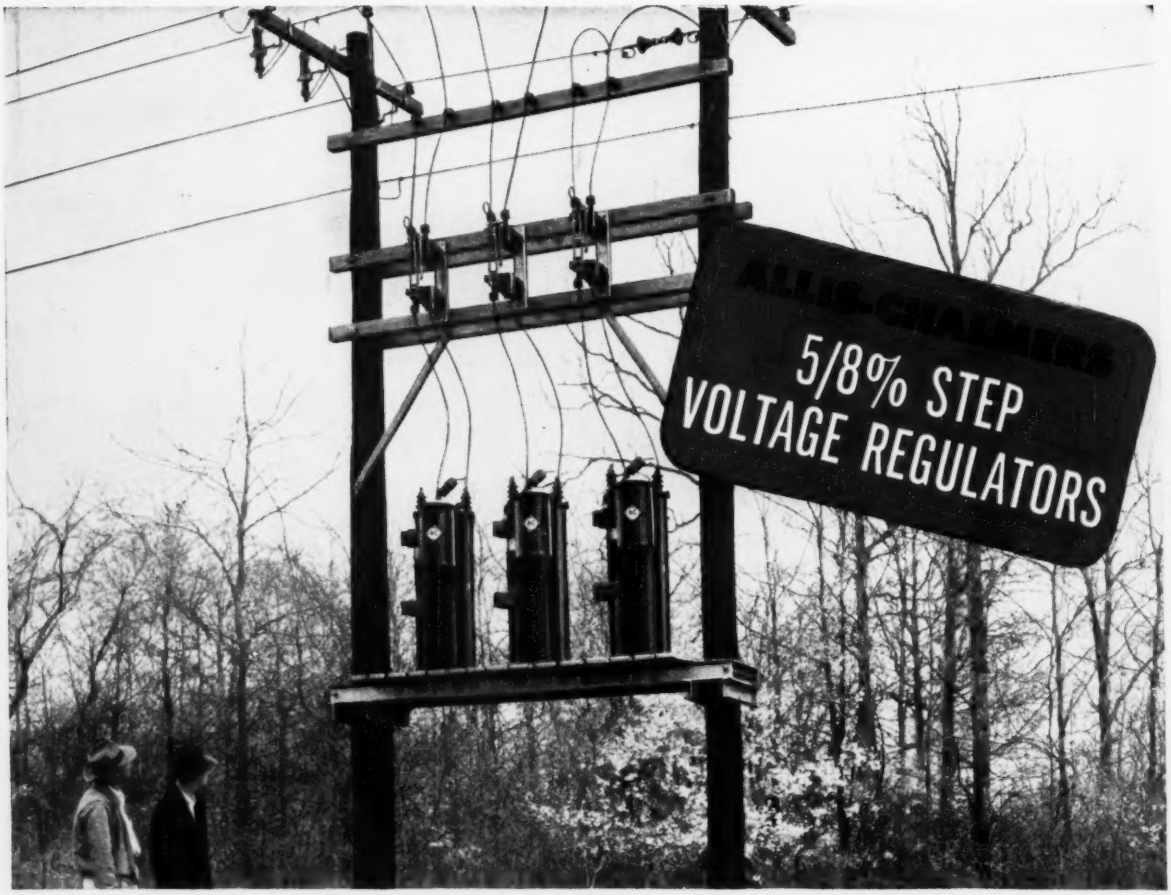

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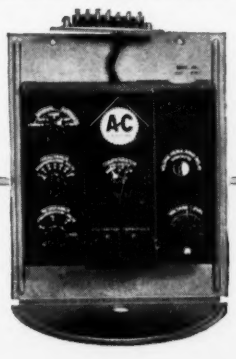
RATINGS AVAILABLE	7620 Volts—15, 50, 100 amp 5000 Volts—50, 100 amp 2500 Volts—100, 200 amp

Feather-Touch *Control Simplifies Installation*

There's just one adjustment to make when installing — set the calibrated voltage level. For more facts, write for Bulletin 01M7866-1.



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